DOMESTIC ENGINEERING

PUBLISHED EACH SATURDAY
BY
Domestic Engineering, (Inc.)

Jno. K. Allen, President and Treasurer.
Elmer Crawford, Vice-President.
Frank P. Keeney, Secretary.
E. De Forest Winslow, Asst. Secretary.
Carl W. Miller, Asst. Treasurer.

Jno. K. Allen, Editor.
Rasmus Herlov, Charles H. Denison, Associate Editors.

MAIN OFFICES:
49-53 NORTH JEFFERSON STREET, CHICAGO, ILL.

SUBSCRIPTION RATES:

United States, Cuba and Mexico.....$1.00 a year
Canada.....$2.00 a year
Other Foreign Countries.....$3.00 a year
12 shillings. 12 marks. 15 francs.
Single copies of current issue, 5 cents; copies of back numbers, 10 cents each.

REMITTANCES.—Subscriptions are payable in advance, and remittances should be made by check, Chicago draft, postal or express money order, in favor of DOMESTIC ENGINEERING.

CHANGE OF ADDRESS.—The old address should be given as well as the new, and notice should be received a week in advance of the desired change.

NOTICE TO ADVERTISERS.

Copy and cuts for advertisements intended for a particular issue should reach the office of DOMESTIC ENGINEERING on Wednesday of the previous week if it is desired that a proof of the advertisement shall be submitted. New advertisements can be received up to noon of Wednesday of the week of issue, but no proof can be shown.

Entered as Second-Class Matter at the Post Office at Chicago, Illinois, Under Act of Congress of March 3, 1879.

Member of the Chicago Trade Press Association.
Member of the Federation of the Trade Press Associations of the United States.

Whole No. 867. Vol. XLVIII. No. 4. Chicago, July 24, 1909.

Suggestion:
Cut out; frame neatly; put in show window; change weekly.

LOOK TO THE HEATING PLANT.

The man about to buy or rent a house should look at the heating plant first. If the walls are artistically decorated it will be small comfort when winter comes if the heating plant is deficient. The leaded lights will not add to your cheerfulness if you have to burn the gas and wear an overcoat to breakfast. But in a snug, warm house, other annoyances lose their sting.

Be sure, then, that the house you are looking at has a heating plant installed by a competent firm who use only high grade material bearing a guarantee.

"Is it Contract or Day Work?"

Not long ago I stepped into a retail plumbing establishment and found the proprietor bordering on **a state of mind**, which, while not exactly unpleasant, was warming up to the indignation point.

It was early in the morning, and the last man to leave the shop for the place of work assigned him was just going out through the door as I entered.

The proprietor called my attention to him and said that he had been with him but a short time and the way it looked he would remain with him a still shorter time.

"Why, what do you think he asked me when I laid out his work this morning? He wanted to know if I was doing it by contract or the day? I asked him what difference that made to him, and he said if it was contract work **he should try and get through with it a little faster than if it was done by the day.** I told him it was none of his business; that what I expected of him was **an honest day's work** and it made no difference whether he was working directly for me on contract work, or indirectly, for someone else, on day work."

While the incident made a strong impression on me at the time, it was brought home to me with still greater force, by contrast with the management of another plumbing shop in which I happened to go a short time after. It was after dinner and the last man was just leaving for his work, when the proprietor called out to him, "Jack, how long will it take you to finish at such a place?" naming the party where he was working. Jack replied he thought he would be through about 2 o'clock. "Can't you make it last the afternoon out?" said the proprietor; "his money is good; guess you better put in the afternoon."

It is needless to add that Jack left with the understanding he was to kill the afternoon on the job. It is also needless to add, it wasn't contract work.

Which class are you in, Mr. Master Plumber?

Do you handle your men entirely on the basis of whether you are **doing contract work, or day work,** expecting in the one instance the man to **kill himself** for you and in the other for him to **kill the job?**

Or do you expect in either instance an honest day's labor, for which you pay an honest wage, with justice and a square deal to all?

If in the class where you ask your men to kill time on the job you may rest assured the slaughtering process will include your business. If, which is more apt to be the case, you ask your men to do good work, honest work, with honest materials and a just sense toward your customer your man and yourself, nothing can prevent you from succeeding.

H. H. Gove.

How Insanitary Conditions are Remedied in Washington, D. C.

By HENRY B. DAVIS, Inspector of Plumbing, Washington, D. C.

Every large city has houses which are in a dilapidated condition and in a number of cases without sewer and water connections, owned by residents and non-residents of that particular brand, who seem to lack sufficient civic pride to keep their property in a proper condition for human habitation and who turn the deaf ear to all appeals of the tenants for relief and make use of devious ways of evading health, building and plumbing regulations.

For such owners the necessity of some drastic law, and not regulation, is necessary, and I submit the law which has been in force in the District of Columbia since May 1, 1906, to cover such cases, and which is accomplishing excellent results:

AN ACT

To Create a Board for the Condemnation of Insanitary Buildings in the District of Columbia, and for Other Purposes.

Be it enacted in the Senate and House of Representatives of the United States of America in Congress assembled, That there be, and is hereby, created in and for the District of Columbia a board to be known as the board for the condemnation of insanitary buildings in the District of Columbia, to consist of the assistant to the Engineer Commissioner in charge of buildings, the health officer and the inspector of buildings of said District, and to have jurisdiction and authority to examine into the sanitary condition of all buildings in said District, to condemn those buildings which are in such insanitary condition as to endanger the health or lives of the occupants thereof or of persons living in the vicinity, and to cause all buildings to be put into sanitary condition or to be vacated, demolished, and removed, as may be required by the provisions of this Act. Said board may authorize and direct the performance of any of the ministerial duties of said board by officers, agents, employees, contractors, and employees of contractors duly detailed or employed by the Commissioners of said District for that purpose. Said board, the members thereof, and all persons acting under its authority, may, between the hours of eight o'clock antemeridian and five o'clock postmeridian, peaceably enter into and upon any and all lands and buildings in said District for the purpose of inspecting same. Said board shall report its operations to the Commissioners of the District of Columbia from time to time as said Commissioners direct. Said Commissioners shall furnish said board such assistance as may be required for the proper conduct of its work, by details from various departments and offices of the government of said District.

Sec. 2. That a majority of the board for the condemnation of insanitary buildings shall constitute a quorum, and a majority vote of the members present shall be necessary to condemn any building under this Act. Whenever for any reason the health officer is unable to act as a member of said board one of the deputy health officers shall act as a member thereof in place of said health officer, and whenever for any reason the inspector of buildings is unable to act as a member of said board the principal assistant inspector of buildings shall act as a member thereof in place of said inspector of buildings; but no person shall act as a member of said board who has any property interests, direct or indirect, in his own right or through relatives or kin, in the building the sanitary condition of which is under consideration. The deputy health officer and the principal assistant inspector of buildings, when acting as member of the board for the condemnation of insanitary buildings in the District of Columbia, shall have all authority and duties which are vested by this act in the health officer and the inspector of buildings, respectively, when acting in the same manner.

Preliminary Notice.

Sec. 3. That said board for the condemnation of insanitary buildings be, and is hereby, authorized to investigate, through personal inquiry and inspection by the members thereof, and through inquiry and inspection by officers, agents, and employees appointed or detailed for that purpose, into the sanitary condition of any building or part of a building in said District, except such as are under the exclusive jurisdiction of the United States. If any building or part of a building be found, as the result of such investigation, to be in such insanitary condition as to endanger the health or the lives of the occupants thereof or of persons living in the vicinity, said board shall cause a notice to be served on each owner or part owner of such building requiring him to show cause within not less than twenty days, exclusive of Sundays and legal holidays, from the date of the service of said notice why such building or part of building should not be condemned.

Condemnation.

And if within the time specified in said notice no cause be shown sufficient in the opinion of a majority of said board to prevent the condemnation of such building or part of building, said board shall issue an order condemning such building or part of building, and shall cause a copy of such order to be served on each owner or part owner thereof, and a copy or copies to be affixed to the building or part of building condemned.

Occupancy of Condemned Houses.

Sec. 4. That from and after thirty days, exclusive of Sundays and legal holidays, after a copy or copies of any order of condemnation has been affixed to any condemned building or part of building no person shall occupy such building or part of building.

Sec. 5. That no person having authority to prevent shall permit any building or part of building condemned to be occupied except as specially authorized by the board for the condemnation of insanitary buildings in the District of Columbia, under whose authority of section six of this Act, after thirty days, exclusive of Sundays and legal holidays, from and after the date of the service of a copy of the order of condemnation on the owner of such building; or, if there be several part

owners of such building, from the latest date of service on any part owner; or, if copy or copies of such order of condemnation has been affixed to the condemned building or part of building at a date subsequent to the date of service of the notice on any owner or the latest date of service on any part owner, after thirty days from the date on which said copy or copies of such order of condemnation was so affixed.

Correction of Insanitary Conditions.

Sec. 6. That if the owner or owners of any building or part of building condemned under the provisions of this Act shall make such changes or repairs as will remedy in a manner satisfactory to said board the conditions which led to the condemnation of said building or part of building, said board shall cancel its order of condemnation and the building may be again occupied; and if such owner or owners can not make such changes or repairs within the period which they may lawfully permit such building or part of building to be occupied under section five of this Act, but proceed with such changes or repairs with reasonable diligence during that period, said board may, by special order, extend from time to time the period within which the occupants of said building or part of building may remain therein and within which the owner or owners thereof may permit them so to do.

Demolition of Condemned Buildings.

Sec. 7. That the owner or owners of any building or buildings condemned under the provisions of this Act, which can not be so changed or repaired as to remedy the condition which led to the condemnation thereof, shall demolish and remove such building or part of building within a time to be specified by said board in the order of condemnation. And if any owner or part owner shall fail or refuse to demolish and remove said building or part of building within the time so specified he shall be deemed guilty of a misdemeanor and liable to the penalties provided by section thirteen of this Act, and such building or part of building shall be demolished and removed under the direction of the board for the condemnation of insanitary buildings in the District of Columbia, and the cost of such demolition and removal, less the amount, if any, received from the sale of the old material, but including the cost of making good such damage to adjoining premises as may have resulted from carelessness or willful recklessness in the demolition of such building and the cost of publication, if any, herein provided for, shall be assessed by the Commissioners of the District of Columbia as a tax against the premises on which such building or part of building was situated, such tax to be collected in the same manner as general taxes are collected, and when collected shall be deposited in the Treasury to the credit of the United States and the District of Columbia in equal parts.

Notices. Service of.

Sec. 8. That whenever the title to any building or part of a building the condemnation of which is contemplated is in litigation, said board for the condemnation of insanitary buildings shall notify all parties to the suit and shall report the circumstances to the corporation counsel of the District of Columbia, who shall bring such circumstances to the attention of the court in which such litigation is pending for the purpose of securing such order or decree as will enable said board to continue such proceedings looking toward condemnation, and such court is hereby authorized to make such decrees and orders in such pending suit as may be necessary for that purpose.

Sec. 9. That whenever the title to any building or part of building is vested in a person non compos mentis, or a minor child or minor children without legal guardian, said board for the condemnation of insanitary buildings shall report that fact to the corporation counsel of the District of Columbia, who shall take due legal steps to secure the appointment of a guardian or guardians for such persons non compos mentis, or minor child or children aforesaid, for the purpose of the condemnation proceedings authorized by this Act. And any justice of the supreme court of the district of Columbia holding the equity court is hereby authorized to appoint a guardian or guardians for that purpose.

Sec. 10. That any notice required by this Act to be served shall be deemed to have been served if delivered to the person to be notified, or if left at the usual residence or place of business of the person to be notified, with a person of suitable age and discretion then resident therein; or if no such residence or place of business can be found in the District of Columbia by reasonable search, if left with any person of suitable age and discretion employed therein at the office of any agent of the person to be notified, which agent has any authority or duty with reference to the land or tenement to which said notice relates; or if no such office can be found in said District by reasonable search, if forwarded by registered mail to the last known address of the person to be notified and not returned by the post-office authorities; or if no address be known or can by reasonable diligence be ascertained, or if any notice forwarded as authorized by the preceding clause of this section be returned by the post-office authorities, if published on ten consecutive days in a daily

"A Trio of Heavyweights." Here is a portion of the heavy delegation which Cincinnati, Ohio, sent to the recent Detroit convention. They are from left to right: R. J. Cluxton, J. B. Laumann and John N. Simon. Photograph by our Mr. Winslow.

newspaper published in the District of Columbia; or if by reason of an outstanding recorded transfer of title the name of the owner in fact can not be ascertained beyond a reasonable doubt, if served on the owner of record in the manner hereinbefore in this section provided. Any notice to a corporation shall, for the purposes of this Act, be deemed to have been served on such corporation if served on the president, secretary, treasurer, general manager, or any principal officer of such corporation in the manner herein before provided for the service of notices on natural persons holding property in their own right; and notice to a foreign corporation shall, for the purpose of this Act, be deemed to have been served if served on any agent of such corporation personally, or if left with any person of suitable age and discretion residing at the usual residence or employed at the usual place of business of such agent in the District of Columbia.

Right of Inspection.

Sec. 11. That no person shall interfere with any member of the board for the condemnation of insanitary buildings or with any person acting under authority and by direction of said board in the discharge of his lawful duties, nor hinder, prevent, or refuse to permit any lawful inspection or the performance of any work authorized by this act to be done by or by authority and direction of said board.

Placards not to be Concealed, Obliterated or Removed.

Sec. 12. That no person shall, without the consent of said board for the condemnation of insanitary buildings, deface, obliterate, remove or conceal any copy of any order of condemnation which has been affixed to any building or part of building by order of said board, and the owner and the person having custody of any building or part of building to which a copy or copies of any such order has been affixed shall, if said copy of said order has been to his knowledge defaced, obliterated, or removed, forthwith report the fact in writing to said board, unless he has good reason to believe that such copy of such an order has been removed by authority of said board, and if such copy of such order has been concealed shall forthwith expose the same to view.

Penalties.

Sec. 13. That any person violating or aiding or abetting in violating any of the provisions of this Act shall, upon conviction thereof in the police court of the District of Columbia, upon information filed in the name of said District, be punished by a fine of not more than one hundred dollars or by imprisonment for not more than ninety days; and each day on which such unlawful act is done or during which such unlawful negligence continues shall constitute a separate and distinct offense.

Right of Appeal.

Sec. 14. That the owner or owners of any building or part of building condemned under the provisions of this Act may, within the time specified in order of condemnation, institute proceedings in the supreme court of the District of Columbia, sitting as a district court, for the modification or vacation of the order of condemnation aforesaid, and the court shall give precedence to any such case and shall hear the testimony adduced therein; and unless the court shall find that there is sufficient proof made of the necessity of the destruction of such building or part of building, the order of the board of condemnation of insanitary buildings shall be modified or set aside, as said court shall direct, otherwise the court shall issue such orders and decrees as may be necessary to carry the order of said board, as made by the board or as modified by the court, into effect; and the court may appoint a committee of award, consisting of three persons, each of whom shall have the qualification of jurors in the District of Columbia, who, after taking the oath required of jurors in the trial of civil causes, shall proceed to hear and receive evidence respecting the amount of damages to be awarded to the owner or owners of such condemned building or part of building aforesaid, and said committee may issue subpoenas requiring the attendance of witnesses before them and may administer oaths to such witnesses. Witnesses may be compelled to appear and testify before said committee in the same manner as witnesses may be compelled to appear and testify in the supreme court of the District of Columbia; and, if need be, said committee shall be entitled, upon application, to the aid of said court to compel such attendance and giving of testimony. Unless the court shall order otherwise, the hearing of evidence before said committee need not be in the presence of the court, but they may meet in any room assigned to them by the United States marshal for the District of Columbia, who shall, in person or by deputy, attend such hearings. In such proceedings evidence shall be received by the committee of award appointed as aforesaid, to prove—

First. That the rental of the building was enhanced by reason of the same being used for illegal purposes, or being so overcrowded as to be dangerous or injurious to the health of the inmates; or

Second. That the building is in a state of defective sanitation, or is not in reasonably good repair; or

Third. That the building is unfit and not reasonably capable of being made fit for human habitation; and if the committee, or a majority of the members thereof, is satisfied by such evidence that compensation should be awarded, then the compensation—

(a) Shall in the first case, so far as it is based on rental, be on the rental, of the building (as distinct from the ground rent), which would have been obtainable if the building was occupied for legal purposes and only by the number of persons whom the building was, under all the circumstances of the case, fitted to accommodate without such overcrowding as is dangerous or injurious to the health of the inmates; and

(b) Shall in the second case be the amount estimated as the value of the building if it had been put into a sanitary or safe condition, or into reasonably good repair, after deducting the estimated cost of putting it into such condition of repair; and

(c) Shall in the third case be the value of the materials of the building.

That after hearing and considering the testimony offered by the owner and offered on behalf of the District of Columbia, the said committee of award shall report to the court in writing the compensation allowed by them to the owner according to the provisions of

this section. Unless cause be shown to the court within ten days from the filing of said report why the same should not be confirmed, the court shall confirm the same and judgment be entered thereon accordingly; but from the damages awarded in any case the cost of removing the building, including the cost of making good such damage to adjoining premises as may have resulted from carelessness, or willful recklessness in such removal, and the cost of publication, if any, authorized by section ten of this Act, shall be deducted unless the owner shall, at his own expense, remove the same within such time as may be fixed by the court in the order confirming the report of the said committee as hereinbefore provided.

That each member of the committee of award appointed by the court as aforesaid shall receive for each day's attendance the sum of five dollars, and any vacancy caused by death, sickness, or disqualification may be filed by appointment by the court.

Sec. 15. That except as herein otherwise authorized all expenses incident to the enforcement of this Act shall be paid from appropriations made from time to time for that purpose, one-half from the revenues of the District of Columbia and one-half from any money in the Treasury not otherwise appropriated.

Sec. 16. That all Acts and parts of Acts inconsistent with the provisions of this Act be, and the same are hereby, repealed.

Approved, May 1, 1906.

As will be seen from this law, the board is composed of three city officials who are required to perform their duties without additional compensation (there is a law against a District of Columbia official holding two positions and drawing two salaries from the government). These officials are busy men, so that it was necessary to employ an inspector to make preliminary inspection, keep the records, serve notices and post condemnation signs, report cases which need the official action of the board, which is supposed to personally visit the premises in a body before taking action. The condemnation signs are printed in heavy type on cardboard, 9x12 inches, and read as follows:

Office of the Board

FOR THE CONDEMNATION OF INSANITARY BUILDINGS

District of Columbia

COPY OF THE ORDER OF CONDEMNATION

Premises .....

.....

The premises described above having been found, as the result of an investigation by the Board for the Condemnation of Insanitary Buildings to be in such insanitary condition as to endanger the health or the lives of the occupants thereof or of persons living in the vicinity; and the owners of said building having been notified in the manner prescribed by law to show cause why such building should not be condemned, and no cause having been shown within the time allowed by law and prescribed in said notice, sufficient in the opinion of a majority of the members of said Board to prevent condemnation of said bulding:

It is hereby ordered, this.....day of ..... 190.... that said building be and it is hereby condemned.

And it is further ordered, that unless said building be so changed or repaired as to remedy the conditions which lead to the condemnation thereof, the owner of said building demolish and remove the same within..... days after the service of this notice.

.....
Assistant to Engineer Commissioner,

.....
Health Officer, M. D.

.....
Inspector of Buildings,

Board for the Condemnation of Insanitary Buildings.

This copy of the order condemning the above-described premises was affixed to said premises on.....

..... From and after.....

.....this building cannot lawfully be occupied unless the Board for the Condemnation of Insanitary Buildings, for cause shown, by special order extends the period within which occupancy may continue.

.....
Inspector.

Note: From and after thirty days, exclusive of Sundays and legal holidays, after a copy of any order of condemnation has been affixed to a condemned building, no person can lawfully occupy such building unless the Board for the Condemnation of Insanitary Buildings, for cause shown, extends the time within which occupancy may continue.

No person shall, without the consent of said Board for the Condemnation of Insanitary Buildings, deface, obliterate, remove, or conceal any copy of any order of condemnation which has been affixed to any building or part of building by order of said Board; and the owner and the person having custody of any building or part of building to which a copy or copies of any such order has been affixed, shall, if said copy of said order has been to his knowledge defaced, obliterated, or removed, forthwith report that fact in writing to said Board, unless he has good reason to believe that such copy of such an order has been removed by authority of said Board, and if such copy of such order has been concealed shall forthwith expose the same to view.

The total number of houses acted upon since the creation of the Board for the Condemnation of Insanitary Buildings, to June 30, 1908, was as follows:

	Exam'd.	Demolished.	Rep'd.	Pend'g.
Houses in alleys.....	331	213	97	21
Houses on streets.....	628	332	127	169
Total	959	545	224	190

From the date of this last report to March 16, 1909, the number of buildings demolished has been

"Past and Present Members of the Brass Fraternity." These gentlemen greeted many old friends at the recent Detroit convention. They are, from left to right: Mort Hammer, for many years a salesman for plumbers' brass goods; L. Rickersberg, of the Rickersberg Brass Company, Cleveland, Ohio, and D. Kaatz, of the Best Manufacturing Company, Cleveland, Ohio. The photograph was taken by our Mr. Winslow.

further increased by 169, making a total removed of 714 houses.

A further report for the year ending June 30, 1908, shows the number of tenants required to secure other quarters by reason of buildings being demolished through the action of the board:

	Adults.	Children.	Total.
Houses on streets	403	272	675
Houses in alleys	226	155	381
Total	629	427	1,056

Of this total 1,042 were colored tenants, 13 white and one Chinaman.

The total number of tenants required to seek other quarters since the board was created to June 30, 1908, were 984 adults, 630 children, making a total of 1,614.

The number of tenants benefited by repairs to dwellings, through the action of the board, is given as follows:

	Adults.	Children.	Total.
Houses on streets	203	87	290
Houses on alleys	107	112	319
Totals	410	199	609
Assessed value of houses removed in alleys one year ending June 30, 1908			$18,900
Assessed value of houses removed on streets one year ending June 30, 1908			21,900
Total			$40,800

The law is very broad in its scope, as sewer and water, and plumbing fixtures can be required; roof, downspout, gutter, plaster, floors and woodwork be repaired and painted, and trash, garbage and filth required to be removed, and to comply generally with all District of Columbia regulations and laws before the board lets up on the owner.

It is not difficult to see the value of this law to any city in removing blots on a city's landscape and creating better housing and sanitary conditions for the poor of the city.

Often, however, cases are brought to the attention of the board, through neighborhood quarrels or a desire of the tenant for revenge on the owner because of an order to move for non-payment of rent. Bad housekeeping and general neglect by tenants are responsible for numerous cases being brought to the board's notice, and the character of the different tenants is particularly noticeable in houses of the same general character, in a row. Some will be found clean and kept in as sanitary a condition as circumstances and conditions will permit; others will be found filthy, a general accumulation of trash, filth, unclean bedding, vermin and unclean persons, and no attempt is made to keep even a semblance of cleanliness. The ignorance of some tenants and lack of cleanliness, both at home and in the person, can only be corrected by inculcating into the children at school the necessity and value of cleanliness, as in some cases the parents are generally beyond redemption, except when health officers wield the big stick.

A Combination Ventilating, Heating and Cooling Plant in a Bank Building*

By A. M. Feldman.
(Member of A. S. H. V. E.)

The object of this paper is to give data and results of the regular operation of a ventilating, heating and cooling plant installed in a bank building in New York City for the firm of Kuhn, Loeb & Co. In view of the relative scarcity of information of this character and the growing in favor of artificially cooling air supplied for ventilation purposes it is hoped the figures will prove of value. The plant is now in its third year, and some interesting facts have been learned with regard to the best manner of introducing the cool air in summer, with regard to the use of steam heating coils for the refrigerated medium, which, to the best knowledge of the writer, is the first time that it has ever been attempted, to the amelioration of drafts from windows, and finally to the use of the exhaust air from the banking rooms in cooling the engine room.

The points to be considered are involved in the part of the plant serving the banking offices of Kuhn, Loeb & Co., comprising about 85,000 cubic feet, in the ground floor of that company's 20-story building on William and Pine streets. The building is of "L" shape, giving light in the rear, with the ground floor extending over the entire lot, with a skylight over the extension. Mechanical ventilation, to insure a constant supply of fresh air with a coincident removal of the vitiated air, is provided for the banking offices only. The building has its own isolated power plant, which is located in the basement. Two-thirds of the ground floor is thus directly over the boiler and engine rooms (there is no sub-basement in this building). In the original lay-out the ducts for carrying the fresh air supply to, as well as the exhaust air from the banking rooms were under the ceiling of the engine and boiler rooms, with a result that the fresh air was always overheated and odorous from the engine room, etc., through conditions peculiar to the build-

*Read at the summer meeting of the American Society of Heating and Ventilating Engineers, held at Indianapolis, Ind., July 15 and 16, 1909.

ing. Considerable heat was also transmitted into the offices through the floor, notwithstanding that the latter was insulated underneath with a suspended ceiling of magnesia blocks.

The writer was called upon to devise a scheme for the introduction of a supply of fresh air without going through the engine and boiler rooms in the basement, also for cooling the banking rooms, to counteract the heat from the floor and make the occupants comfortable. After a careful study of the situation, the writer designed a *combination ventilating, heating and cooling plant,* which was installed under his supervision, and which has given very satisfactory results for the past three years.

The blower, coils, air washer, etc., were located on a part of the roof over the first floor extension, drawing the fresh air from the court formed by the "L" shape of the building (see Fig. 1). The discharge from the blower was carried through the roof, and the ducts were branched under the ceiling of the directors' room; the air also was led in a duct over the false ceiling in the main entrance hall, to allow for delivering the air through the inner wall of the banking rooms (see Fig. 2). A suspended translucent glass ceiling was built under the unsightly ducts in the directors' room to hide them. All the fresh air outlets and registers are near the ceiling, that is, top registers. The exhaust registers are in the other three walls near the floor, as indicated in the drawings. Thus the fresh air in winter as well as in summer is being drawn across the room toward the outside walls, where the occupants are usually in sitting positions or relatively at rest, so that draftiness is readily discovered if existing. In other words, there would be danger of drafts if the inlet and outlet registers were both in the outside walls, because of the tendency of the cool air to descend rapidly on the heads, etc.

This was found especially to be of great advantage in the summer when the air was being delivered at a temperature of about 8 to 10 degrees lower than that maintained in the room, as the cooler air drops down mostly near the entrance, or public space of the banking office, and not over the heads, which would have been the case were the air introduced through registers in the outer walls. The exhaust air from the bank is not much vitiated, on account of the very large quantity allotted per person, and being cool, exhausted from near the floor, the writer deemed it best to discharge it into the engine room, with a result that the temperature of the engine room was reduced more than 10 degrees lower than it used to be before this was done. To overcome drafts from the windows, the writer has installed plate glass in frames in front of them over the top of the direct-radiator boxes—the glass extending less than half the height of the window—the radiators being between the plate glass and window. This stopped the drafts.

The blower is of the multivane type, 30 inches, delivering 390,000 cubic feet of air an hour at a speed of 350 r. p. m., or 4.6 changes in an hour.

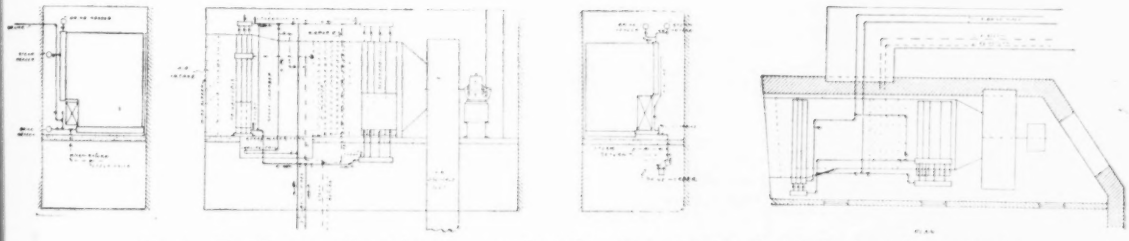


Fig. 1. The blower, coils, air washer, etc., located on part of the roof over the first floor extension.

The air washer cleans the air by an arrangement of fine water sprays, reducing the temperature of the air when the water is cool, and by means of eliminator plates the suspended particles of water are removed from the air before it is drawn over the heating coils into the blower. In some of the neighboring low buildings cannel coal is being used on old-fashioned grates. Large particles of soot are discharged out of the low chimneys and they used to be drawn into the banking rooms with the fresh air supply of the blower. Also the United States Assay building is not far away; occasionally some odors would be brought in from same whenever the direction of the wind was favorable. The air washer entirely eliminated these objectionable features.

As there was no room for the installation of cooling coils in addition to the tempering and heating coils, two sets of headers were provided with shut-off valves, so that the tempering and heating coils are used in the winter for heating the air and as cooling coils in the summer by circulating refrigerated calcium chloride through them. Of

course there are separate steam and brine mains leading to the coils. The coils are of the standard hot blast mitre type of 1-inch galvanized iron pipe, galvanized to prevent rusting from the deposit of moisture on the outside when cold brine circulates through them. There are six rows of pipe aggregating 275 square feet in the primary coils, and twelve rows in the secondary coils aggregating 443 square feet of surface, or a total of 718 square feet. The steam pipes and headers are insulated with magnesia sectional covering and the brine pipes and headers with standard cork insulation.

The steam and brine are carried from the engine room to a distance of about 80 feet.

The steam headers are provided with automatic temperature regulation which enables them to maintain a uniform temperature in the bank (see Fig. 4).

As the apparatus is removed from the immediate supervision of the engineers, three recording thermometers were installed, one to register the outdoor temperature at the intake of the fresh air, one the temperature of the air after it has passed the fan, and the third thermometer to record the bank temperature. The clockwork and dials are located in the engine room in sight of the engineers (see Figs. 4 and 5).

The refrigerating plant for cooling the calcium chloride brine, which is being circulated through the coils to cool the air in the summer, consists of a 20-ton marine type machine of the compression system with cross compound steam cylinders and two ammonia cylinders, double-pipe condenser and double-pipe refrigerator. Everything is so piped that one-half of the plant could be run in case the other half is disabled.

The writer calculated that 30 tons refrigeration were necessary, but there was no room for a larger machine, so a brine storage tank was installed with the idea that the machine is to be run for a few hours at night time to store up low-temperature brine, which helps the machine during the daytime.

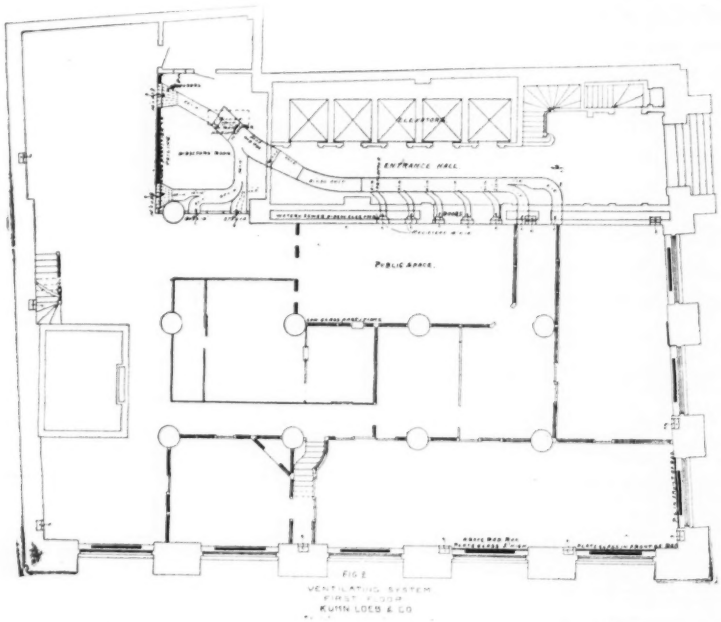


Fig. 2. Showing the method of delivering air and manner of carrying the discharge from the blower.

There are two 6-inch by 8½-inch by 6-inch duplex steam-driven pumps for circulating the brine through the cooling coils. The pumps draw the brine from the storage tank through the refrigerators and up to the coils. The brine from the latter returns to the brine storage tank. A meter is installed on the delivery main near the pumps. There are also thermometers.

The piping, coils and headers are so arranged that were there greater capacity in the refrigerating machine, the air would be cooled to a lower degree, so as to remove a great deal of the absolute humidity. For instance, the primary coils could be utilized for cooling purposes and indeed a part of the main heater, the other part to be used to reheat the air to the desired temperature, controlling it auto-

matically. Under such conditions a considerably lower relative humidity could be obtained in the banking rooms.

The plant has turned out to be of just the necessary capacity to lower the temperature of the outside air 20 degrees F., and maintain the air in the bank 10 degrees lower than outside in the hottest weather (see Fig. 5). This difference was found to give the desired comfort, without causing unpleasant drafts, or chilled sensation in entering the room.

From 14 to 16 rows of coils are used in the early morning to bring down the temperature in the bank, which has become warmed during the night, and only 12 or 14 rows to do the work during the entire day, in the hottest weather, to maintain the 10 degrees difference between outdoors and the banking rooms.

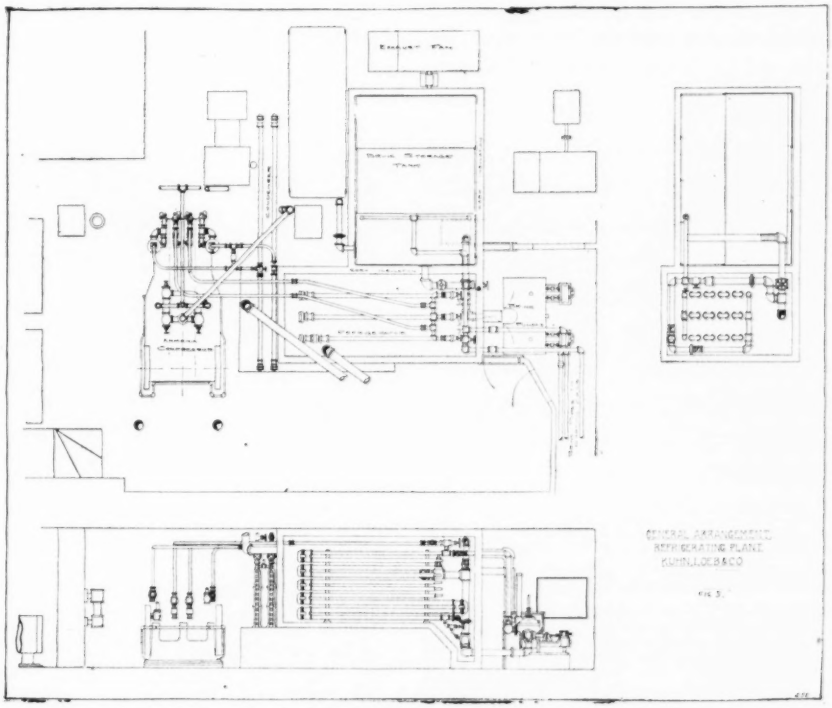


Fig. 3. The steam headers provided with automatic temperature regulation.

TEST NO. 1, JUNE 25, 1909.

Taking for an example an observation and test made in the afternoon of June 25, 1909, the following data were obtained:

Cooling coils used—12 rows, 2 in the primary and 10 in the secondary coils, or a total surface of 447.6 square feet.

Outdoor temperature, 91 degrees F.

Outdoor relative humidity, 53 per cent.

Temperature—the air was cooled down to and introduced into the banking rooms, 71 degrees F.

Average temperature in the banking rooms, 81 degrees F.

Relative humidity in the banking rooms, 63 per cent.

Temperature of brine at circulating pump, going out 35 degrees F., returning at 38 degrees F., a loss of 3 degrees F.

Temperature of brine at cooling coils entering and leaving same 35¼ degrees F. and 37¾ degrees F. respectively, a rise of 2.5 degrees F.

Amount of calcium chloride brine circulated through the system equaled 21.5 cubic feet per minute.

REFRIGERATION ACCOMPLISHED.

Taking the weight of a cubic foot of calcium chloride liquid at the density which was being used as 73 pounds, also assuming the specific heat as 0.82, the heat (H) absorbed by the brine from the cooling coils, and therefore from the air in an hour would be equal to $(21.5 \times 73 \times 2.5 \times 0.82 \times 60) = 193{,}048$ B. T. U.

One ton refrigerating capacity is defined as being equal to the heat transfer involved in the freezing or melting of 2,000 pounds of ice in 24 hours. The latent heat of ice being 142.2 B. T. U. for 2,000 pounds, this represents 284,400 B. T. U. per 24 hours, or about 12,000 B. T. U. per hour.

In other words, 1 ton refrigerating capacity for one day is equivalent to the performance of 12,000 B. T. U. every hour. If we divide the total heat (H) as calculated by 12,000, the result will be the tons of refrigeration accomplished by the brine on the coils, thence on the air, namely,

$(193{,}048 \div 12{,}000) = 16.1$ tons refrigeration.

As shown above, there was 0.5 degrees F. loss in the two main calcium chloride brine pipes between the pump and the bunker of coils, which represents by the same method of calculation an equivalent of $(21.5 \times 73 \times 0.5 \times 0.82 \times 60) \div 12{,}000 = 3.21$ tons refrigeration. Total work done by the refrigerating machine equal to 19.31 tons, not counting losses between the refrigerator, storage tank and pumps.

Thus the machine has been tasked to its full capacity and somewhat over.

Air Cooling.

The volume of air which passed over the cooling coils and was introduced into the rooms was measured by an anemometer and amounted, as stated, to about 390,000 cubic feet per hour. The air was cooled from 91 degrees to 71 degrees, or 20 degrees F. One cubic foot at the average temperature along the coils cooled 1 degree gives off 0.0175 B. T. U., hence 390,000 cubic feet cooled 20 degrees F. gave up 136,500 B. T. U. in an hour, an equivalent of a performance of 11.37 tons of refrigeration for cooling the air (12,000 B. T. U. representing the heat equivalent of one ton refrigeration.

Absolute Humidity.

The weight of a cubic foot of aqueous vapor at different temperatures and percentages of saturation is called the absolute humidity.

The absolute humidity of the outdoor air, at 91 degrees F. and 53 per cent relative humidity equals 8.074 grains; that of the air in the banking rooms at 81 degrees F. and 63 per cent relative humidity is 7.103 grains. The 390,000 cubic feet of air at 91 degrees F. will be about 382,000 cubic feet at 81 degrees F. $(390{,}000 \times 8.074 - 382{,}000 \times 7.103) = 435{,}500$ grains, or 62.2 pounds water were removed from the air by the cooling coils per hour. This should be corrected by deducting the amount of vapor given off by the occupants of the rooms in the products of respiration.

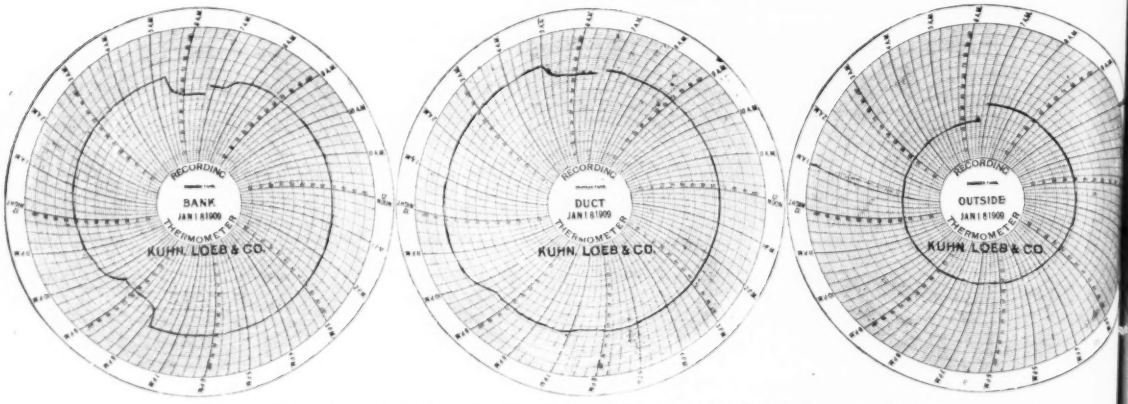


Fig. 4. Clockwork and dials located in the engine room and showing record of tests.

This quantity, however, is small in comparison with the total amount, as the average supply of moisture by the human body is 1-15 pound per hour. There are only about 33 people constantly in the banking rooms, the number of those coming in and leaving was not ascertained. Assuming all together about 40 persons in the banking rooms, it would make a correction of about 2.7 pounds, or 59.5 pounds of water condensed and removed from the air by the process of refrigeration.

The latent heat of vapor at the average temperature of 81 degrees F. is 1,057.6 B. T. U. This multiplied by 59.5 and divided by 12,000 equals the equivalent of 5 tons of refrigeration. This represents the tonnage of performance in condensing the above amount of vapor and reducing the absolute humidity of the air delivered to the banking rooms.

Thus the total tonnage of refrigeration in the process of cooling the air and reducing the absolute humidity amounted to (11.37 + 5) 16.37 as against calculated 16.1 tons of refrigeration performed by the calcium chloride in the coils. Practically, the former figure ought to have been slightly less to account for losses in transmission. But the discrepancy may be accounted for in the readings of the thermometers which are of commercial type and not finely graduated. With the data observed the writer also checked the tonnage with the aid of chart No. 2 given in W. W. Macon's paper on "Air Cooling by Refrigeration," presented at the annual meeting of the society, 1909, and found the same, namely, that an equivalent of 5 tons of refrigeration were used in condensing

mary and 10 rows in the secondary, or a total of 526.2 square feet of cooling surface.

Outdoor temperature, 84½ degrees F.

Outdoor relative humidity, 68 per cent.

Temperature, the air was cooled down to 66 degrees F.

Average temperature in the banking rooms, 77½ degrees F.

Relative humidity in the banking rooms, 74½ per cent.

Temperatures of calcium chloride at circulating pump going out and returning respectively—37½, 40½—a rise of 3 degrees F.

Temperatures of brine at cooling coils—37¾, 40¼—a rise of 2.5 degrees F. in refrigerating the

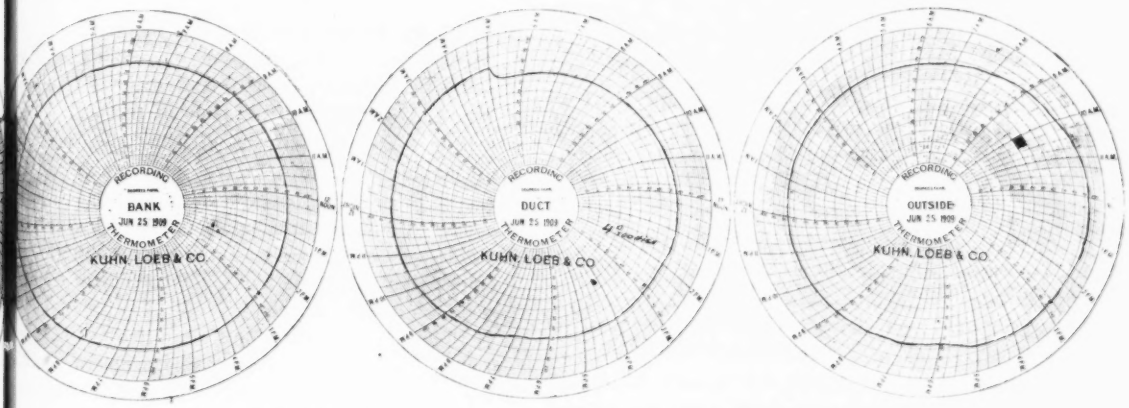


Fig. 5. Clockwork and dials located in the engine room and showing record of tests.

and removing the above amount of vapor from the outdoor air. With the aid of the chart I also found that the air was not fully saturated when cooled to 71 degrees F. No observations were made on the conditions of the relative humidity of the air as it left the bunker of coils.

The relative humidity in general was measured by means of a sling or whirled psychrometer. This instrument consists of a pair of thermometers, provided with a handle, which permits the thermometers to be whirled rapidly, the bulbs being thereby strongly affected by the temperature of and moisture in the air. The bulb of the lower of the two thermometers is covered with thin muslin, which is wet at the time the observation is made. The psychrometric tables published by the United States Weather Bureau were used in these calculations for obtaining the relative and absolute humidities.

TEST NO. 2, JUNE 26, 1909, 10 A. M.

Cooling coils in use—4 rows of pipe in the primary and 10 rows in the secondary, or a total of 526.2 square feet of cooling surface.

Outdoor temperature, 84½ degrees F.

Outdoor relative humidity, 68 per cent.

Temperature, the air was cooled down to 66 degrees F.

Average temperature in the banking rooms, 77½ degrees F.

Relative humidity in the banking rooms, 74½ per cent.

Temperatures of calcium chloride at circulating pump going out and returning respectively—37½, 40½—a rise of 3 degrees F.

Temperatures of brine at cooling coils—37¾, 40¼—a rise of 2.5 degrees F. in refrigerating the coils, due to cooling the air reducing the absolute humidity.

The pump was running at same speed, circulating 21.5 cubic feet of calcium chloride per minute.

REFRIGERATION PERFORMED.

As the amount of calcium chloride circulated and rise in temperatures of the calcium chloride were the same as on the previous day, the same amount of work was performed by the refrigerating medium on the coils and air, namely, an equivalent of 16.1 tons of refrigeration.

AIR COOLING.

The air was cooled from 84½ degrees to 66 degrees F., a drop of 18.5 degrees F. The quantity of air passed over the coils was about 390,000 cubic feet per hour. One cubic foot of air at the average temperature along the coils cooled 1 degree gives off .0177 B. T. U., hence the 390,000 cubic feet cooled 18.5 degrees F. gave off (.0177 × 18.5

× 390,000) = 127,686 B. T. U. in an hour, or an equivalent of work done of 10.64 tons of refrigeration in cooling the air.

ABSOLUTE HUMIDITY.

The absolute humidity of the outdoor air at 84½ degrees F. and 68 per cent relative humidity is 8.531 grains per cubic foot, that of the air in the banking rooms at 77½ degrees F. and 74½ degrees relative humidity is 7.488 grains per cubic foot. Correcting the volume of 390,000 cubic feet of the air due to the change in density would make about 384,000 cubic feet at 77½ degrees F., hence (390,000 × 8.531 — 384,000 × 7.488) = 451,700 grains, or 64.5 pounds of water. Correcting for the vapor given off by the occupants in the process of respiration, 61.8 pounds of water were condensed on the coils and removed from the air, due to the refrigerating effect of the calcium chloride in cooling the coils. The latent heat of vapor at the average (84½ degrees — 66 degrees) temperature of 75¼ degrees F. is 1,061.6 B. T. U. This multiplied by 61.8 pounds and divided by 12,000 gives an equivalent of 5.3 tons of refrigeration. This represents the tonnage of performance in condensing the above amount of vapor and reducing the absolute humidity of the air delivered to the banking rooms.

From the chart above referred to it figures out about 5.75 tons of refrigeration. The total tonnage of refrigeration in this test in both the process of cooling the air and reducing the absolute humidity, amounted to (10.64 + 5.3) = 15.94 tons, as against the 16.1 tons of refrigeration calculated from the performance of the calcium chloride in the coils.

The coils, as stated, were of the standard hot blast mitre type of 1-inch pipe. The full area of the secondary coils is equal to 8⅓ square feet. As the quantity of air delivered over them was about 390,000 cubic feet per hour, or 6,500 cubic feet a minute, the air velocity was 780 feet per minute.

COEFFICIENT OF HEAT TRANSMISSION AT 780 FEET PER MINUTE VELOCITY JUNE 25, 1909.

The average temperature of the air, 91 — 71 = 81 degrees.

The average temperature of the brine in coils = 36.5 degrees.

The difference of temperature between the air and brine = 44.5 degrees F.

Total heat absorbed by the coils per hour = 193,048 B. T. U.

Total cooling surface in coils, 447.6 square feet.

Heat transmitted per degree of difference of temperature per square foot per hour = $\frac{193,048}{447.6 \times 44.5}$ = 9.7 B. T. U., June 26, 1909.

The average temperature of the air was 75.2 degrees F.

The average temperature of the brine in coils 39 degrees.

Difference of temperature between the air and brine, 36.25 degrees.

Total heat absorbed by the coils per hour, 193,048 B. T. U.

Total cooling surface in the coils, 526.2 square feet.

Heat transmitted per degree difference of temperature per square foot per hour = $\frac{193,048}{526.2 \times 36.25}$ = 10.6 B. T. U.

The average for the two tests is 10.15 B. T. U. per square foot of galvanized iron pipe, with an air velocity of about 780 feet per minute at the given difference of temperatures, and given temperature of refrigerating medium. With lower temperatures of the latter and different velocities of the air passing over the coils, the coefficient of heat transmission will vary.

It is to be hoped that the Committee on Tests of the society will take a hold of this problem, and by using test thermometers and calibrated instruments will obtain further data to establish standards. It is especially hoped that the method suggested in this paper of refrigerating the air down to low temperatures and then reheating it would be followed and observations made with various low relative humidities.

It is the belief of the writer that more comfort and better results would be obtained by furnishing drier air of a uniform relative humidity of about 50 per cent to 60 per cent with rather a small difference of temperature between the outdoor and indoor conditions.

A Fitting Deduction.

"Do you know what an oath is, little girl?"

"Yes, sir; I must always tell the truth."

"If you always tell the truth, where will you go when you die?"

"Up to heaven."

"And if you tell lies."

"To the naughty place, sir."

"Are you quite sure of that?"

"Quite."

"Let her be sworn. It is quite clear she knows a great deal more than I do."—Life.

Greenhouse Heating

By Phoenix

When riding upon any inter-urban or steam line, if one glances out of the car window, numbers of greenhouses can be seen dotting the landscape here and there. This is especially noticeable upon a bright day when the glittering rays of the sun are reflected for many miles by the roofs of these money making structures.

This increasing number of fertile spots in the zone of winter **added to the fact that in any good sized town in the north all kinds of flowers or vegetables can be obtained regardless of the season,** proves conclusively that the green house business is rapidly growing.

There is good money in this business for the owner, the store that sells the flowers or vegetables, and the steam-fitter. also, if he is on to his job.

Several years ago a farmer in one of the rural districts of the "Empire State" decided to engage in the greenhouse business. He possesesd neither credit nor capital, but by "hook or crook" succeeded in acquiring the glass, boards, pipe, fittings and boiler and finally erected a sorry looking lop-sided little house in which he started to raise lettuce.

He kept at it, and today owns a **battery of greenhouses heated from a central plant, has paid for his farm, sent his children through college, and, all this was done by raising lettuce in a greenhouse.**

Another instance: This second man could not buy the glass nor lumber enough to make the benches in the house, so he erected the sides of the house and for

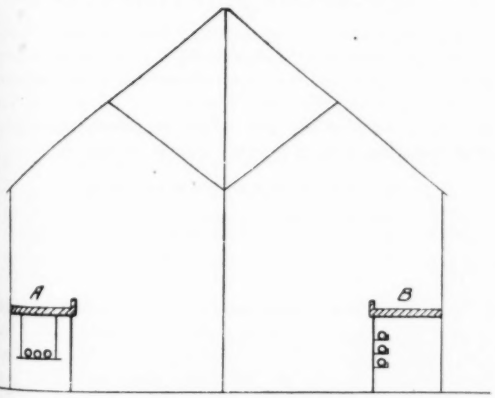


Fig. 46. In which the arrangement of the hot water pipes under the benches may be seen, the arrangement shown under A being preferred.

roof used cheap muslin cloth. He then ran the piping in the ground. The house was upon a side hill, the season (fortunately) mild, and this man secured a fine crop of lettuce which tided him over his **"financial depression."**

A couple of well constructed greenhouses, approximately 50x150 feet used in producing lettuce or tomatoes, will render any person fairly independent financially.

Many opinions exist today as to the proper arrangement of the piping used in heating greenhouses, and also as to the relative merits of hot water and steam when used for this purpose.

Some authors state that on certain classes of work little or no bottom heat is desired, while in other cases only top heat is used.

The reason was not given, so the writer of this article started some investigations of his own and visited several well known greenhouses which were being conducted successfully and the following is the result:

First. Hot water heat seemed to have the preference in the smaller houses, by far the greater number of

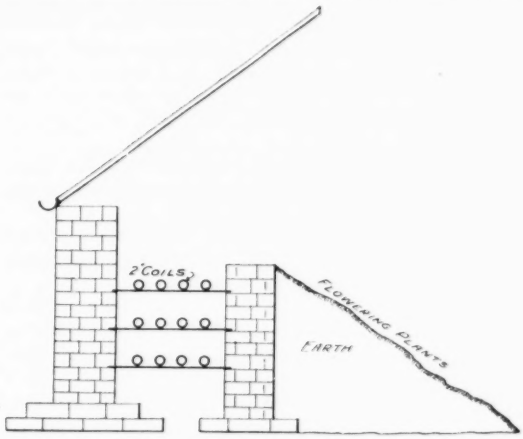


Fig. 47. Section of greenhouse showing arrangement of steam coils in a passage running around the inside of the building. The bank of earth covered with flowers in bloom is backed by a wall. There are no heating pipes under the earth.

commercial houses being so heated. These houses make a business of raising products for quick sales.

Second. In these particular greenhouses, **the pipes were run under the benches as shown in Figure** 46 under letter A, producing what is called bottom heat. **No pipes were run overhead between the glass roof and the growing vegetation.**

One of the gardeners in attendance when asked the reason for this state of affairs said that "when you want to force the growth, the heat should come from below and that the overhead heat was neither desirable nor necessary."

Third. The writer did not find a single greenhouse having what might be called a complete overhead system of heating.

One **system** visited is said to contain nearly **two million square feet of glass.** This **village of greenhouses** covers some **twenty-five acres of ground** and has several independent low pressure steam heating systems, some twenty to twenty-four greenhouses being connected to each boiler. **The condensation is returned to these boilers by steam** tilting traps, two to each boiler. The condensation is first run into a receiving tank and from that to the lower trap by the side of the boiler. This trap elevates the condensation to the trap located over the boiler, which fills, tilts and discharges its contents into the boiler.

This is at least one instance of steam traps being successfully used in greenhouses in disposing of the

question of the location of the radiation as regards the water level. This twenty-five acre field of greenhouses makes a business of raising flowers, mostly, for the market. "To be sure," said one of the attendants, "we have two or three acres of asparagus under glass."

The bottom system of heat was used in nearly all of the houses in this immense plant, the coils being constructed mainly of 1 1-4 pipe.

Another very large system visited had huge curvilinear roofs, the highest point being probably over forty feet from the ground. These greenhouses were heated by a patented low pressure vacuum system and the boiler was located at quite a distance. Some rooms had steam pipes **under the benches**, as shown in figure 46 A. And in other rooms the steam pipes were arranged as shown in figure 47.

These coils were all built of 2-inch pipe.

Somewhere I have seen a statement which I quote from memory. "The boiler is the heart of the heating apparatus."

Possibly this may be true, but if so then there are a mighty lot of defective and crippled extremities "hooked up" to that **heating heart**.

Nearly any old boiler can be crowded into furnishing enough heat to squeeze along on; **but the best boiler on the market may be seriously crippled through defective piping or insufficient radiation.**

The writer believes that hot water pipes arranged side by side as shown in Fig. 46 A will be found more effective than when arranged vertically as shown in Fig. 46 B when hot water is used.

The reason for this is that in an open tank hot water system the flow of the hottest water would tend to go to the upper pipes first, and possibly the lower pipes might heat very little, or not at all.

Many people have trouble in locating the boiler to secure the best results.

A pit is generally quite unsatisfactory because of the danger of water coming in and putting out the fire at undesirable periods. Likewise the sunken boiler will not have as good a draft as it would if it had not been dropped. Question: If it is possible by means of any one of the many patented appliances on the market, several of which are advertised in **Domestic Engineering**, to put a pressure of ten pounds on a hot water job and make it circulate more quickly, and with the radiators in almost any location, why are not more boilers set on the floor of a greenhouse, even though part of the boiler would be higher than the pipes running under the benches and pressure applied?

Another question: What is to hinder the same result being obtained with steam, **and what are steam traps for?**

Lest some one should say that the steam pressure would not be sufficient to operate the trap and return the condensation to the boiler it can be stated that five pounds of steam would be enough, generally, and that many greenhouses heated by steam carry more than this pressure, while there are traps advertised to operate on less than five pounds.

Owing to the large amount of glass surface used in buildings of this nature, and the poor construction which many times occurs, it is rather a difficult matter to give information as to the manner of accurately estimating the necessary amount of radiation, and any figures given must be tempered considerably with good "horse sense." The following table, which is reproduced from Carpenter's "Heating and Ventilating Buildings" will be found very useful and quite reliable. The use of this table for estimating is explained as follows:

Suppose that the greenhouse has 1,000 feet of glass surface and that it is desired to bring the heat up to 70° in presumably zero weather. This would require some 200 feet of radiation with steam at 5 lbs. pressure. It will be seen that the division five was used to obtain this result. The same rule will work for obtaining radiation required at other temperatures. For instance, suppose that hot water used at 160 degrees, the temperature of surrounding air being 60°, and that there was 3,000 square feet of glass in the greenhouse. Dividing by the required divisor 4, we find that 750 feet of radiation would be necessary.

A table which shows the amount of glass surface or equivalent which may be heated by one square foot of radiating surface in good buildings:

	Hot Water.			Steam. 5 lbs.	10 lbs.
Temp. of Radiating Surface...	160°	180°	200°	227°	240°
	Sq. Ft. of Glass for 1 Sq. Ft. of Radiating Surface				
Temp. of surrounding air, 90° F..	1.9	2.3	2.8	3.3	3.6
Temp. of surrounding air, 80° F..	2.3	2.9	3.5	4.0	4.3
Temp. of surrounding air, 70° F..	3.0	3.6	4.2	5.0	5.5
Temp. of surrounding air, 60° F..	4.0	4.6	5.25	6.0	7.0
Temp. of surrounding air, 50° F..	5.0	6.0	6.8	8.0	9.0
Temp. of surrounding air, 40° F..	6.9	8.0	8.2	10.0	11.5

Questions and Answers

This Department is maintained for the use of every reader of "Domestic Engineering." We solicit problems from you and will give them our best attention. In stating your questions please give all of the facts as clearly as possible and when necessary accompany your question with a correct layout of the job.

A GOOD POLISH FOR ZINC.

175. **South Norwalk, Conn.**—To the Editor of "Domestic Engineering." Sir: I cannot find a good cleaning polish for zinc metal. Can you assist me by publishing one?—**H.**

"(1) To polish sheet zinc a good method is found in the following: First scrape and finally polish the zinc with pulverized wood charcoal or Vienna lime. The polished articles are generally dried in heated sawdust, and after drying freed from adhering sawdust with a cotton rag or soft leather.

"(2) Old zinc can hardly be made to look like new but may be improved by scouring it with dilute acid and a scratch brush or dust of scouring brick. It may then be rubbed with some finer polishing substances.

"(3) Mix one part of muriatic acid with two parts of water. Apply to zinc and rub the same with sand until bright. Then dry well and rub with a cloth dipped in oil."

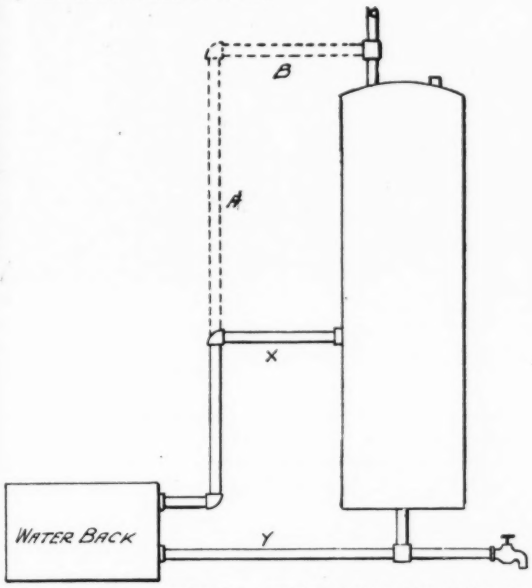
HOW TO IMPROVE WATER BACK CONNECTIONS.

176. **Little Rock, Ark.**—To the Editor of "Domestic Engineering." Sir: Can you suggest by a drawing any improvement in the usual method of connecting the

water back to range boiler whereby quicker results may be had in securing the hot water? Z.

The general practice is to connect the water back as shown by the pipes X and Y in the figure given.

Another method for which there is claimed an increased and more effective circulation is represented by the dotted lines a and b,



A suggested manner for securing better circulation in range boiler.

The flow pipe from the water back is connected to a branch in the hot water supply above the boiler claiming to acquire greater velocity. We should like to hear from some of our readers who have installed jobs in this manner.

DOES WATER EXPAND IN FREEZING?

177. **Pekin, Ill.**—To the Editor of "Domestic Engineering." Sir: Our shop boys have got into a discussion, and we would thank you for a little information on the following:

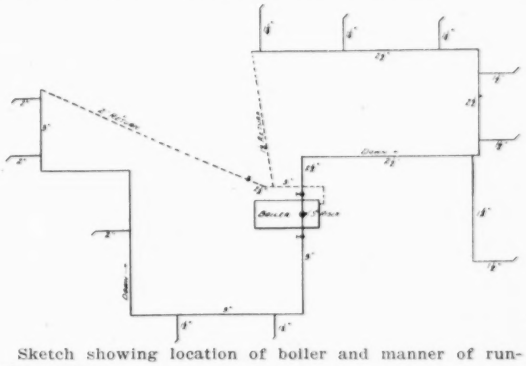
Can a body of water be compressed so that it will not occupy the original amount of space? Does water expand in freezing? H. G.

Water, according to Kent's Mechanical Engineer's Book, is slightly compressible, varying from .00004 to .000051 for one atmosphere and decreasing with increase of temperature.

Richey, under the head of Evaporation of Water in Freezing, says: "That cold contracts is the law of physics, but as water cools it obeys this law only as far as 30° F. Then it slowly expands in cooling down to 32° F., its freezing point. Then its crystals suddenly dart out at an angle to each other and thus increasing in size about one-twelfth, it congeals and becomes ice. Ice, therefore, is one-twelfth lighter than water and consequently floats."

WILL THIS JOB WORK CORRECTLY?

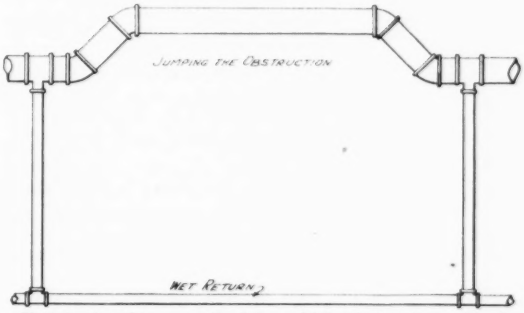
178. **Bellevue, O.**—To the Editor of "Domestic Engineering." Sir: "I enclose a sketch of a steam heating job that I am placing in a church. Do you think it will make a good working plant? If not suggest any changes that may occur to you. The mains are carried in manner shown to avoid obstacles. I am



Sketch showing location of boiler and manner of running mains.

using a **X. Y. Z.** Boiler A. 73. I desire to keep the water line 18" below end of mains. Can I do job on less? I have to go under beams which are only 6 feet from floor. The boiler will have to go in a pit. Can you advise me how deep to dig the pit? The length of the longest (2½") run is about 120 ft., and the other is some 90 ft. D. H. C.

We have examined the sketch of steam job you forward and find it in general, good. Boiler size seems sufficient and mains large enough. You can gain some space by taking the branches of the main on 45° ells. You can also drop the end of the mains to 14 inches above the water line. You can run the mains on a pitch of one-half an inch in ten feet, but be sure that you get it accurately. The water line on the boiler you mention is 53 inches, your longest



Sketch showing a method by which obstructions to pipe lines may be overcome.

run you say is 120 feet, and the pitch is to be one-half an inch in ten feet. Get out your tees and nipples and make up the tee, ell and nipples, starting at the boiler, as close as possible and you will then be in shape to figure out just how much to sink the boiler. When sinking a boiler it is best to dig six inches lower than you intend the boiler to set and put in a good foundation of grouting and cement. If there is any danger of water seeping into the pit, line the bottom and sides with heavy tarred paper, and put the foundation and sides over this tarred paper and you will not be bothered with water in the pit.

Members and guests in attendance at the summer meeting of the American Society of Heating and Ventilating ... famous Army and Navy me... which

Heating and Ventilating Engineers

Profitable Summer Meeting held at Indianapolis, Ind., July 15 and 16, 1909.

Indianapolis, Ind., July 16.—(Special).—The **summer meeting of the American Society of Heating and Ventilating Engineers,** convened yesterday and today in the Palm room of the Claypool Hotel in this city, a somewhat larger number of names appearing upon the register than last year.

Opening Session.

Promptly at ten o'clock Thursday morning **President Wm. G. Snow called the meeting to order** and began with the calling of the roll by Secretary Mackay, who announced that the following new members had been elected:

New Members.

William E. Austin, 107 Commerce St., Baltimore, Md.

John H. Bacon, Jr., 7612 Sagamore Ave., Cleveland, Ohio.

William A. Baker, American Warming & Ventilating Co., Toledo, Ohio.

Fred A. Bartley, 1436 Nixon St., Pittsburg, Pa.

James B. Bladon, Darling Bros., Ltd., Montreal, Canada.

Davis S. Boyden, 39 Boylston St., Boston, Mass.

Samuel S. Clarke, Calgary, Canada.

F. E. Colby, 209 Metropolitan Block, Sioux City, Ia.

A. G. Cripps, Prudential Heating Co., Akron, Ohio.

N. Loring Danforth, 72 Ellicott St., Buffalo, N. Y.

John G. Eadie, 45 West 34th St., New York.

David A. Ebinger, 425 West Town St., Columbus, Ohio.

Sidney E. Fenstermaker, 729 Newton Claypool Bldg., Indianapolis, Ind.

George V. Greey, 1823 Topping Ave., New York.

Harry H. Hess, 129 Worth St., New York. (Advanced from associate membership.)

Fred B. Hofft, Merchants' Heat & Light Co., Indianapolis, Ind.

George Huey, 7 Water St., Boston, Mass.

Albert W. Kerr, 93 East Lake St., Chicago.

Max J. Mulhall, 118 Beekman St., New York.

James W. H. Myrick, 53 Devonshire St., Boston, Mass.

Herman W. Nelson, Moline, Ill.

Edward Norris, Utica Heater Co., Utica, N. Y.

Herbert E. Raymond, 606 Concord Bldg., Portland, Ore.

William Ritchie, 106 West 37th St., New York.

Geo. M. Tait, Sycamore, Ill.

Melvern F. Thomas, 105 DeWitt Place, Ithaca, N. Y.

Geo. O. Titcomb, 14 Appleton St., Lowell, Mass.

Herbert W. Whitten, Chamberlain Weather Strip Co., Detroit, Mich. (Advanced from associate membership.)

John E. Williams, 211 West 20th St., New York.

Louis D. Collins, Geneva, N. Y.

Harry W. Ellis, 93 Lake St., Chicago, Ill.

Chas. B. Kennedy, Penn Ave. and Third St., Pittsburg, Pa.

Reinhold F. Lindeman, 527 Otto St., Chicago, Ill.

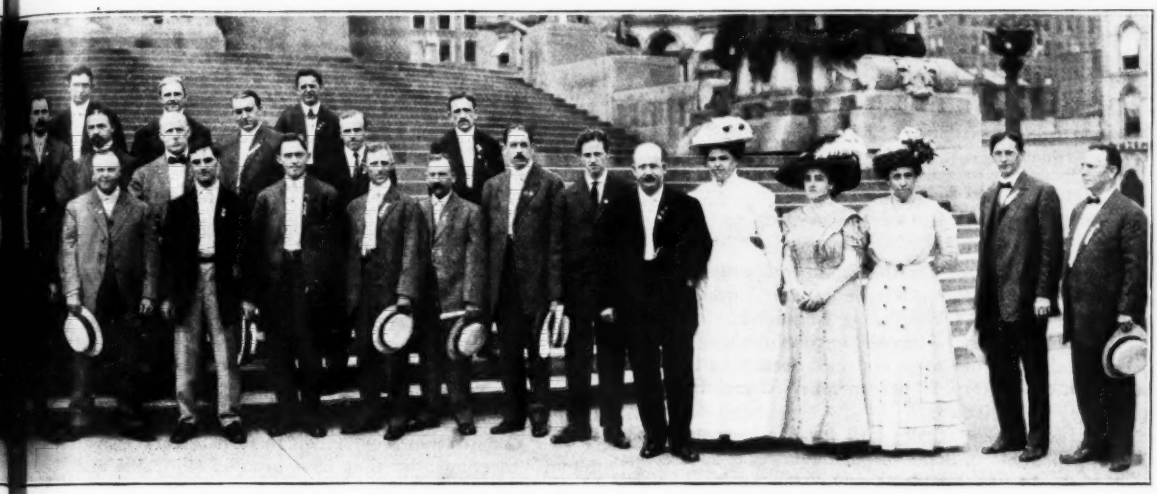
Harris B. Johnson, 1 North 7th St., Richmond, Va.

Frank D. Sharp, State College, Pa.

Members and Guests in Attendance.

List of those in attendance taken from the official register:

Wm. G. Snow, Boston, Mass., August Kehm, Chicago, Wm. M. Mackay, New York, R. C. Carpenter, Ithaca, N. Y., James Mackay, Chicago, Ill., John R. Allen, Ann Arbor Mich., J. D. Hoffman, Lafayette, Ind., John F. Hale, Chicago, Ill., A. M. Feldman, New York, N. Y., F. W. McGuire, Rockford, Ill., Mrs. F. W. McGuire, Rockford, Ill., Frank K. Chew, New York, N. Y., Theo. Weinshank, Indianapolis, Ind., Mrs. Theo. Weinshank, Indianapolis, Ind., Miss Anna Weinshank, Indianapolis, Ind., W. H. Johnson, Indianapolis, Ind., Wm. Braemer, Camden, N. J., W. C. Wolf, Elkhart, Ind., A. W. Kerr, Chicago, F. E. Keegan, Indianapolis, Ind., W. H. Conrad, Indianapolis, Ind., E. A. May, Chicago, S. Kauffman, St. Louis, Mo., Jas. A. Donnelly, New



s, held at Indianapolis, Ind., July 15 and 16, 1909. The photograph was taken on the steps of the base of the ich is the pride of that city.

York, N. Y., B. Natkin, Chicago, S. E. Fe nstermaker, Indianapolis, Ind., R. M. Stackhouse, Chicago, Geo. D. Hoffman, Chicago, A. G. Cripps, Akron, O., Jas. L. Sparks, St. Louis, Mo., Andrew Harvey, Detroit, Mich., Joseph Graham, New York, N. Y., William Grier, Pittsburg, Pa., A. S. Armagnac, New York, N. Y., J. F. Harmon, Marion, O., Thos. Tait, Washington, Ind., J. G. Hayes, Indianapolis, Ind., John Boylston, Chicago, W. W. Macon, New York, N. Y., S. M. Bushnell, Chicago, B. F. Raber, Lafayette, Ind., Jas. H. Davis, Chicago, Ill., L. W. Strain, Danville, Ill., E. J Ryan, Danville, Ill., H. W. Whitten, Detroit, Mich., Mrs. H. W. Whitten, Detroit, Mich., W. A. Short, Decatur, Ill., F. B. Gaettny, New York, N. Y., A. E. Werkhoff, Lafayette, Ind., John Zellweger, St. Louis, Mo., A. F. Sheehan, St. Louis, Mo., Chas. F. McCarthy, Indianapolis, Ind., Fred B. Hofft, Indianapolis, Ind., J. A. Moyer, Ann Arbor, Mich., M. J. Farquhar, Wilmington, O., R. H. Seward, New York, N. Y., J. H. Kinealy, St. Louis, Mo., Miss Winnifred Kinealy, St. Louis, Mo., L. K. Ascher, Indianapolis, Ind., H. J. Wacher, Indianapolis, Ind., Chas. H. Denison, Chicago, J. H. Bacon, Jr., Cleveland, O., W. A. Baker, Toledo, O., Wm. F. Schardem, Louisville, Ky., J. W. Hurty, Indianapolis, Ind., R. C. Turner, Indianapolis, Ind., J. B. Brown, Indianapolis, Ind., H. L. Dillon, Chicago, A. T. Kellogg, Kewanee, Ill., Geo. F. Kiekhoff, Indianapolis, Ind., J. M. Giechner, Indianapolis, Ind., C. P. Benjamin, Detroit, Mich., Geo. W. Wood, New York, N. Y., Frank P. Phegley, St. Louis, Mo., J. H. Brewster, Indianapolis, Ind., R. E. Haldeman, Indianapolis, Ind., J. N. Hurty, Indianapolis, Ind.

The report of the Committee on Standards Relative to Boiler Rating called forth remarks from various members and is given, in part below:

Tentative Report of Committee on Standards Relative to Boiler Rating.

"Your Committee on Standards with your Committee on Boilers, forming a joint Committee have worked hard since the January meeting of the Society upon the subject of Rating Cast Iron Boilers, which was assigned for us at the January meeting.

"We are not prepared at present to submit a final report, because we have not yet completed our work.

"This report is only a report of progress in which we desire to tell you what we have done and to ask that you bear with us until the next meeting.

* * * * * * * * * *

"We will establish a standard rating based * * * upon the rate of combustion per square foot of grate surface and efficiency; and in order that those manufacturers who consider that their boilers should be rated higher than the standard rating may have an opportunity to prove their claims we are considering recommending that there be established a Board of Appeal to whom manufacturers may submit evidence in regard to their boilers and ask for a higher rating.

"Our idea is that when this Board of Appeal considers that a boiler is entitled to a higher rating than the standard rating, it will so certify, and thus give to this particular boiler whatever rating above the standard rating the Board may consider proper.

"In considering what shall be the standard rating of boilers of different sizes, we have agreed,

"1. That Standard coal shall be anthracite coal having a heating power of 13,000 B. T. U. per pound of dry coal.

"2. That one square foot of direct radiation steam surface, with steam at 2 pounds pressure in the radiator and a temperature of 70 degrees for the surrounding one, will emit 250 B. T. U. per hour; and that one square foot of direct radiation hot water surface, with water at an average temperature in the radiator of 160 degress for the surrounding air, will emit 150 B. T. U. per hour;

"3. That the grate area of a boiler shall be the opening in which the grate is placed, measured to the outermost limits of air openings;

"4. That the standard ratings shall be for boilers under average working conditions.

"On the whole, your Committee are able to report that a great deal of progress has been made and that the question of rating boilers is in a very satisfactory condition. * * * *

Respectfully, J. H. Kinealy, Wm. G. Snow, W. M. Mackay, John R. Allen, H. A. Smith, A. B. Franklin, W. L. Bronaugh.

President's Address.

President Snow addressed the meeting and said, in part:

"We have gathered for the Summer Meeting of the Fifteenth year of the existence of the American Society of Heating and Ventilating Engineers.

"A striking degree of interest in this organization has been manifested of late. On our **recent ballot, the largest in our history,** 27 new members, 2 juniors and 5 associates were elected.

"One feature that augurs well for our future success is the willingness of many of **our members** to **give freely of their time to important committee work.** This is a real sacrifice made by a few for the benefit of all.

* * * * * * * * * *

"This Society stands for **the engineering side of heating and ventilation.** To be successful it must be kept free from commercialism. We have our trade organizations. Let it be emphasized then that this Society is purely for engineering.

"Let the members come here with a serious purpose to advance its interests so that our standards will be the recognized ones and our aims will command public support.

"Our Society is rapidly gaining in size and I believe in the quality of its membership. Let our aims be high and let us not forget our duty to the public.

"Every year, as we all know, immense sums are wasted through faulty installations due to no desire on the part of the contractor to take advantage of the ignorance of his customer, but due to lack of knowledge of some of the principles of heating and ventilation.

"Standards are needed for the protection of the laymen and for the guidance of the contractor.

"Our committees are at work on such standards and their adoption when perfected will add to the usefulness and prestige of our Society.

"Not only are standards needed to secure successful installations so far as accomplishing the desired ends as to heating and ventilation, but with higher fuel costs greater attention must be paid to economical operation, to a better understanding of the relative advantages of different systems and to securing on the part of purchasers a better appreciation of the fact that there may be other items more important than the first cost which should determine the selection of a heating and ventilating apparatus.

"This Society has done much valuable work in securing compulsory legislation; much more work of this character is needed.

"The sufferers in our workshops are not in a position to take the initiative in ameliorating their condition. We owe it to them to do all in our power to see to it that the conditions under which they must work are made sanitary.

"At this time when the public is being educated to the fact that fresh air and plenty of it is not only a preventative but a cure for certain diseases, we must do all we can to assist in this work.

"We have a Publicity Committee which I believe has a broad field of usefulness before it. It will be the function of this Committee to arrange for the dissemination of knowledge pertaining to ventilation.

* * * * * * * * * *

"It is with deep regret that I mention the death since our Annual Meeting of a former vice-president and charter member, T. J. Waters of Chicago, one whose work reflected credit on this Society and who did much to advance its interests.

"One of our past presidents, John Gormly, has found it necessary on account of ill health to retire from business and has resigned from this Society. It was with regret that his resignation was accepted.

"Our Constitution is not mandatory in regard to our summer meetings, but they have been so enjoyable and have served to promote good fellowship to such an extent that doubtless they may be considered a permanent feature in the conduct of the Society.

"While good fellowship abounds at all our meetings this should be particularly true of those held in the summer when nature is at her best and beckons us to drop for a time the cares and responsibilities that are a part of the existence of most of us.

"Here in this beautiful city; let us give the necessary attention to the serious part of our meeting, but let it be an occasion when members will get in close touch with each other, when East meets West and North meets South, and that as a result we shall all be in full sympathy with each other and with the objects of this Society as set forth in its Constitution and shall be ready one and all to cooperate to secure the attainment of those objects and to build up the prestige of this organization."

John F. Hale, of Chicago, **reported for the Illinois Chapter** a happy condition of affairs. It has some thirty members on the roll, and its monthly meetings are well attended.

The report of the **committee on Fan Blast heating** was listened to and it was moved by Mr. Macon and seconded by Prof. Kinealy that the committee be discharged, with thanks, and the result of their efforts be given to the Committee on Standards. Carried.

Thursday Afternoon.

Prof. John R. Allen, of Ann Arbor Mich., read a most practical paper upon the **"Effect of Painting Radiating Surfaces."**

This paper dealt with the effect that bronzing or painting produced upon radiators regarding the amount of heat transmitted and showed very clearly that bronzing was about the poorest covering that could be applied. The paper will be published in a later issue of "Domestic Engineering."

Several of the discussions down on the program were postponed and in the absence of **B. S. Harrison,** his paper entitled **"Heating and Ventilating System, Finney Chapel, Oberlin, College,** Oberlin, Ohio," was read by Mr. Macon, followed by **Secretary Mackay's paper on "Safeguarding our Profession."**

Friday Morning.

The session of Friday morning was **called to order** by **President Snow** at 10:30 o'clock.

A most valuable and interesting paper showing the results acomplished in **"A Combination Ventilating, Heating and Cooling Plant in a Bank Building" was read by A. M. Feldman.** (This paper is published elsewhere in this issue of "Domestic Engineering.")

The remainder of the morning was taken up with the discussions listed on the program.

Friday Afternoon.

This, the closing session, was called to order by the President at 2:30 o'clock, and a valuable **paper read by H. W. Whitten on "Examples of Wind Effects on Ventilation and Heating.** ("This paper will be published in a later issue of "Domestic Engineering.")

The remaining topics were now brought up and disposed of, after which the convention adjourned sine die.

Entertainments.

The various entertainments took place according to program, and much credit is due to the effective efforts of the entertainment committee whose personnel was as follows: **Theo. Weinshank, Prof. J. D. Hoffman,** John F. Hale, August Kehm, Sidney **Fenstermaker,** W. H. Johnson, Joseph Hays, Thos. Tait, W. H. Conrad, Mrs. Weinshank, Miss Anna Weinshank and Mrs. W. H. Johnson.

Thursday morning the ladies were given an **Auto ride** through the city, and a picture of the members and visitors was taken at the base of the monument at the close of the morning session.

Thursday afternoon the ladies, properly escorted, viewed the monument and various matters of interest in the city.

Thursday evening, at 8 P. M., **Dr. J. N. Hurty,** State Health Commissioner, delivered a lecture on the subject of "School Hygiene" in the convention hall. This was a most interesting topic, and the Doctor proved his interest in the welfare of the rising generation by delivering one of the best lectures on the subject to which it has been our good fortune to listen.

Following the adjournment of the Convention on Friday afternoon, automobiles were provided for a ride around and through the prosperous city. The beautiful residence section was thoroughly explored, the parks, business streets and a run was taken out to the new motor speedway now under process of construction, one of the largest tracks in the world, where automobile races will be held in August.

The Banquet.

In the evening the banquet took place at the hotel, closing this successful and interesting meeting of the Society.

Dr. J. N. Hurty, secretary of the Indianapolis State Board of Health, spoke to the guests on **"Little Things in Life."** The secretary's toast was made up largely of anecdotes, expressing the great influence that little things enmassed can wield on, not only individuals, but also the world.

Speaking directly to the engineers, Dr. Hurty said that the men who are working to improve the heating and ventilating business of America are dealing with the most minute bacteria and microbes that are known; things that the scientists of the world have not yet fully grasped, but that this problem is just as serious as many dealing with much larger forms of life.

Some advice on conduct was given the guests by **Prof. James D. Hoffman** of Purdue University, who arose to the toast, "Ethics of Our Profession." "Every year" said he, "I tell my graduating class to remember four things: That they must be honest; that they must be industrious; that they must be enthusiastic; that they must be courteous. While such advice might be more fitting to a class of graduates just entering the engineering profession, I believe these points are among those on which every man should examine himself constantly."

Regarding the **"future policy of the Society"** with regard to Legislation, H. W. Whitten of Detroit said: "In many states there is a most chaotic condition in regard to the regulation of heating and ventilation in public schools. It is most important that this should be attended to. I think it is one of the greatest duties of the association to espouse the cause and urge legislation along this line. I have heard that one of our past presidents has talked over the situation with Dr. Hurty, and that they are trying to come to some conclusion with regard to legislation in Indiana. We should lose no time in getting in touch with some national organizations, such as the Association of Physical Directors, to look after the welfare of our children in schools."

Other speakers were: Frank K. Chew, New York, "The Field"; E. A. May, Chicago, "Trials of an Engineer"; Theodore Weinshank, Indianapolis, and James A. Donnelly, New York. **Chas. H. Denison.**

PERSONAL MENTION

F. W. Peters, of Wm. B. Scaife & Sons Company, Pittsburgh, Pa., was a visitor to the Chicago trade this week.

M. D. Gould, a prosperous master plumber of Moores, Delaware County, Pa., is recovering from quite a serious illness. He has been sojourning at Atlantic City, N. J.

James Doherty, for several years past connected with the Chicago office of the International Heater Company, of Utica, N. Y., has succeeded the late Thos. P. Healy as manager of that company's Boston office.

Waldo D. Jennings, commercial tourist extraordinary for the H. B. Sherman Manufacturing Company, of Battle Creek, Mich., was seen among his friends in the trade in Boston last week with his sample cases bulging with specimens of the new line of basin cocks his company has recently added to its line of brass fittings.

H. Earle Shaw, formerly with the Boston office of the Wm. H. Page Boiler Company, after an absence of a few years in other lines of trade, is again back in the heating trade, covering the State of Maine and Southern Massachusetts in the interests of the John T. Young Boiler Company, of Norwich, Conn., operating from its Boston office.

WHOLESALE PLUMBING AND HEATING NEWS

Pfau Manufacturing Company, of Cincinnati, Ohio, moves into its new and large plant.

Western Trade Golf Association enjoys Tournament at Homewood Country Club.

PFAU MFG. CO. CELEBRATES FLAG DAY.

Saturday, July 17, was set aside by the employes of the Pfau Manufacturing Company, of Cincinnati, Ohio, and celebrated as flag day to mark the completion of the company's new plant at Mentor and Huston avenues in Norwood a suburb of Cincinnati. In the presence of about fifty invited guests, including the officials of the city and representatives of local supply houses, the mayor of Norwood on behalf of the employes presented the company with a flag expressing his appreciation of the company's addition to his city and felicitating its officers on the loyal support of their employes. Open house was thereafter observed and refreshments were served to the accompaniment of melodies of the proverbial German band. The new plant, which is said to be the largest in the world devoted exclusively to the manufacture of tanks and seats, is a four-story building, 150 feet wide, and 354 and 387 feet respectively on the sides, thus containing a total floor space of 75,000 square feet. The plant was built at a cost of $150,000 and it is equipped with all the modern appliances for the manufacture of everything that goes into a tank and a seat. The different departments are arranged in such a manner that the cost of handling materials has been brought down to the minimum point; one of the most notable features along this line being the geyser system for the distribution of oils and varnish which has been installed and which will effect a large saving both in time and in material. The Pfau Manufacturing Company consisting of Charles Pfau, Edward Pfau and Harry Beeching began business in 1894 in a very modest building on Hunt street in Cincinnati. With the growth of their business a new building was added every third year until their old plant now consists of five buildings, and the new plant will enable them to treble the capacity of the old one. On Mr. Beeching's retirement two years ago the present officers were elected as follows: Charles Pfau, president; Edward Pfau, vice-president; Clifford C. Pfau, secretary and treasurer.

WESTERN TRADE GOLF ASSOCIATION

Twenty-five members of the heating trade of Chicago and vicinity gathered at the Homewood Country Club last week (Thursday) in response to a letter of invitation from the Committee of Arrangements, consisting of C. W. Hubbell, of Henion & Hubbell; D. E. McCabe, of International Heater Co.; J. E. Holland, of the Holland Radiator Co.; J. W. Watson, of the J. L. Mott Iron Works, and R B. Flershem, of the American Radiator Co.

The qualifying round resulted in the following scores:

F. D. Keeler, of Rockford, Ill	40
W. E. Clow, Jr., Chicago	43
J. W. Watson, Chicago	45
C. W. Hubbell, Chicago	46
E. W. Sanborn, Chicago	47
J. M. Stannard, Chicago	47
D. E. McCabe, Chicago	48
George F. Hughson, Chicago	50
J. W. McLean, Chicago	51
C. A. Elliott, Chicago	53
J. P. Dugger, Chicago	53
H. M. Sedgwick, Chicago	53
George E. Downe, Chicago	54
John D. Hibbard, Chicago	55
R. B. Flershem, Chicago	56
Paul Blatchford, Chicago	57
H. E. Pursell, Kewanee, Ill	60
H. T. Kellogg, Kewanee, Ill	61
F. R. Mason, Chicago	61
W. A. Cameron, Chicago	62
J. R. Tuttle, Chicago	62
T. J. Wright, Chicago	65
C. A. Ford, Chicago	65
J. D. Purdy, Jr., Chicago	69
S. A. Witt, Chicago	80

Six flights were played, the following being the results at the conclusion:

1st Flight—J. W. Watson beat W. E. Clow, Jr., one up, winning a silver stein.

2nd Flight—Geo. F. Hughson beat E. W. Sanborn, 2 up and 1 to play, winning a Gillette razor.

3rd Flight—H. M. Sedg wick beat C. A. Elliott, of Crane-Hawley Co., Cincinnati, 2 up, winning a Thermo bottle.

4th Flight—J. D. Hibbard beat Paul Blatchford, 2 up, winning a mixing cup.

5th Flight—A. T. Kellogg, of Kewanee, Ill., beat H. E. Pursell, of Kewanee, Ill., in an extra hole at the end of 18, winning a Thermo bottle.

6th Flight—W. A. Cameron, of Chicago, beat J. D. Purdy, Jr., 5 up, winning a set of cuff buttons and a scarf pin.

The day was perfect for the tournament and the greatest possible enjoyment was had by all. An elaborate banquet was spread in the large dining room of the club, after which speeches were made by W. E. Clow, J. P. Dugger, Paul Blatchford, John D. Hibbard and Jno. K. Allen.

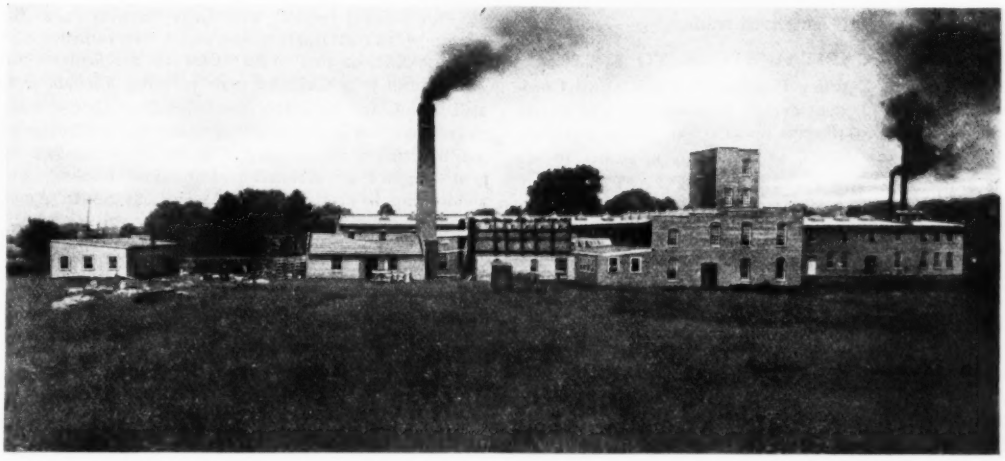
So great was the desire and belief of all that the organization should be made permanent and continuous rather than being a spontaneous expression of the desire to get together, that after the banquet a permanent organization was formed, with the following officers: President, Paul Blatchford, Tribune building, Chicago; vice-president, J. W. Watson, 135 Adams street, Chicago; secretary, R. B. Flershem, 282-288

Michigan avenue, Chicago; treasurer, D. E. McCabe, 48 Dearborn street, Chicago.

It is expected that another tournament will be held within a month.

ABINGDON, ILL., NEW BASE FOR PLUMBING SUPPLIES.

That Abingdon, Illinois, is destined to become a new base for manufacturing and jobbing of plumbing supplies seems to be evident from what has taken place there during the last year. In September, 1908, the Abingdon Sanitary Manufacturing Company was organized and proceeded at once with the erection of a pottery under the supervision of James Simpson, who has been identified with the manufacture of earthenware for the past thirty years. This new pottery has a floor space of 35,000 square feet and is devoted exclusively to the manufacture of vitreous china tank closet combinations. With a capacity of 700 tanks a week the officers of the company believe that it is the largest plant in the United States devoted exclusively to the production of china tank combinations. In March, 1909, the Abingdon Seat and Tank Manufacturing Company was organized, also with headquarters at Abingdon, Ill. This new company has contracted for a large part of the output of the above mentioned pottery and is selling vitreous china tank combinations direct to the plumbing trade in the middle west. The manager of the company is John A. Peters, who is well known to the trade, having been connected with the jobbing interests in St. Paul, Minn., for a period of ten years, and he is ably assisted by a force of ten salesmen. This latter company is just now printing a catalogue which it expects to have ready for mailing about August 1st. It is rumored that other factories of plumbing supplies and specialties may be established at Abingdon, Ill., in the near future.



The new plant of the Abingdon Sanitary Mfg. Company at Abingdon, Ill.

WHEELING POTTERIES CO. REORGANIZED.

The Wheeling Potteries Co., of Wheeling, W. Va., has been reorganized under the name of the Riverside Potteries Co., with J. E. Wright president and general manager; A. A. Wheat, vice-president; S. P. Alpaugh, secretary and treasurer; and W. J. Mays, assistant manager. Preparations are being made to start all their four plants.

BUILDS LARGE ADDITION.

The National Sanitary Manufacturing Company, of Salem, O., announces that it is erecting an addition to its plant which will double its present capacity. It is expected that the new addition will be completed by August 20.

ADDS LINE OF PLUMBING SUPPLIES.

The Chesapeake Supply Company, of 1009-1015 Ninth street, N. W., Washington, D. C., has added a plumbing supply department to its business, for which purpose a suitable warehouse has been leased at 39 New York avenue, running through to M street. Charles A. Mourse is in charge of this department and the territory to be covered will include Maryland, District of Columbia and Virginia. This company is at present compiling a new catalogue, devoted to its lines of heating and mill supplies.

CULIN & STANYAN DISSOLVE PARTNERSHIP.

Culin & Stanyan, manufacturers' agents at San Francisco, Cal., have dissolved partnership by mutual consent and divided the accounts which the firm had on hand as follows: Chas. H. Stanyan, who is now located at 1749 Sacramento street, will represent the following manufacturers: A. Y. McDonald & Morrison Mfg. Co., Dubuque, Iowa; H. Belfield & Co., Philadelphia; Campbell Mfg. Co., Gadsden, Ala.; Cahill Iron Works, Chattanooga, Tenn.; A. & J. Mfg. Co., Chicago, and others. Edward L. Culin has established headquarters at 268 Market street and he will represent the following manufacturers: The Kennedy Valve Mfg. Co., Elmira, N. Y.; Modern Iron Works, Quincy, Ill.; Hollands Mfg. Co., Erie, Pa.; Dayton Supply Com-

pany, Dayton, O.; Michigan Sanitary Company, Muskegon Mich., and several others.

BUILDS LARGE ADDITION.

The Dahlquist Manufacturing Company, of South Boston, Mass., is erecting a new addition to its factory on East Third street in that city. The new building is 50x50 feet, two stories and basement of brick, the type known as slow-burning mill construction. When completed it will be equipped with the most modern appliances used in the coppersmith's art, and will double the company's capacity. It is expected it will be ready for ocupancy about September 1. Theodore W. Dahlquist, founder of the business and owner of the company, states that the new and larger quarters were made imperative by the continual increase in his business, which has grown with rapid strides since its establishment about seven years ago, when Mr. Dahlquist set up shop on his own account with himself and a boy helper as working force, to its present proportions, occupying a plant of considerable extent, employing a large force of men and enjoying a widely extended trade.

INCREASES CAPITAL STOCK TO $350,000.

The Twentieth Century Heating & Ventilating Company, of Akron, O., has certified to an increase of its capital stock from $100,000 to $350,000. It is reported that the company plans to erect an addition to its plant in the near future.

NOW IN EXPORT BUSINESS.

Benjamin Whittaker has resigned from his position as treasurer of J. H. Williams & Company, manufacturers of forgings at Brooklyn, N. Y., to engage in export business at 17 State street, New York City, where he will handle the products of J. H. Williams & Co. and others.

ECONOMY GAS WATER HEATER COMPANY ORGANIZED.

The Economy Gas Water Heater Company, of 1050 Hulbert avenue, Cincinnati, Ohio, has been organized with Dr. G. W. Fels as president to take over the United States rights of the Rapid gas heater as made in Montreal, Canada. The Oliver Schlemmer Company, plumbing and heating contractors, of Cincinnati, are interested in this new enterprise.

ADDS LINE OF RADIATORS.

The John T. Young Boiler Company, of Norwich, Conn., has added a line of radiators to its business, which will be known as the "Norwich" line, and in connection with its "Norwich" boilers should make an ideal combination. The company reports that its business is excellent, having far exceeded that which was looked forward to two months ago, due to more than the expected improvement in business conditions, as well as to the company's aggressive business campaign.

SOCIETA NATIONALE DEI RADIATORI.

Societa Nationale Dei Radiatori is the name of a new company which has just been organized under the laws of Italy with headquarters at Milan. This company bears the same relations to the American Radiator Company as do the English, German and French companies. The new company has taken a warehouse with office building in connection therewith, at 98 Corso Sempione, Milano, and for the time being it will draw its supplies from the German plant at Schoenbeck am Elbe. Louis B. Reed has been appointed general manager, and Chas. F. Hauss sales manager of the Italian company.

WHY NOT TO THE UNITED STATES?

The order for the first portion of a contract of 10,480 chilled iron wheels for the government railways of Argentina, with the option of the order for another 4,000 wheels to follow, has been secured by the British Griffin Chilled Iron & Steel Company (Limited), says the London Times. The order for the wagons required by the Argentine government was given to Belgian firms, but it was specified that the wheels were to be made on the North American system of Griffin manufacture, and, although there is a Griffin company in Belgium, the order was secured for execution in this country. This order will fully employ the British Griffin works at Barrow for about five months.

Why did not this order come to the United States? Mr. Griffin is a Chicago man residing abroad, if he be still living, and he established factories abroad only because our own government had the interests of its manufacturers sufficiently at heart to encourage the establishments of steamship lines and banks. But an awakening is at hand and these great South American countries will pour their orders into our laps.

THE NEW YORK TRADE BASEBALL GAMES.

John Simmons Co's team is playing well these days. Their second meeting with Johns-Manville's team which occurred on Saturday, July 17, resulted in Johns-Manville's first defeat. This makes Simmons a close second in the race for the pennant. The score was 8 to 7.

Sargent & Co's defeated Ronalds & Johnson 11 to 10.

American Radiator Co. vs. Fairbanks Co. resulted in a victory for American, while Cornell & Underhill went down to defeat at the hands of Crane. Nine to nothing tells the tale of the two latter games.

The Diamond S. team of John Simmons' have their war paint on and are out to slash everything along the line. Notwithstanding the excellent playing and good lead of Johns-Manville, Killoch and Warner haven't the least fear for Simmons' position at the end of the season.

Standing of the Clubs.	Won.	Lost.	Pct.
H. W. Johns-Manville Co.	6	1	.857
John Simmons Co.	5	1	.833
American Radiator Co.	6	2	.750
Ronalds & Johnson.	4	2	.667
Crane Co.	3	5	.375
Sargent & Co.	3	5	.375
Fairbanks Co.	2	6	.250
Cornell & Underhill.	1	8	.111

Knicker—Are you sure that was your wife's spirit?

Henpeck—Yes; it announced itself by knocks.—New York Sun.

PROSPECTS GOOD FOR LARGER IRON MELT

Eastern Steel Men Make Additional Purchases.

Increased Activity in Machinery Trade.

PIG IRON MARKET STRONG.

Chicago, Ill.—Barring the labor troubles which are causing some anxiety, conditions are seeming to gradually improve. In the sheet metal business orders are showing an increase. One of the locomotive companies has purchased heavy machine tools to the tune of nearly half a million dollars. The pig iron market is strong, showing increased activity in the east, especially Pennsylvania, where some of the steel makers have made purchases in lots of from 9,000 to 15,000 tons. Some inquiries have been made regarding the first quarter of next year, but the furnaces do not seem at all anxious to furnish quotations. For several weeks the furnaces have been taking orders and upon figuring up to find where they are at, the result shows that they are almost oversold for the next quarter. It would seem from the increased consumption that the prospects for a larger melt of iron were indeed bright.

THE OUTLOOK FOR COPPER.

Chicago, Ill.—For over a year and a half the price of copper has been in the vicinity of thirteen cents, and the reports indicate a steadily increasing production under this condition, which looks as if there was profit in copper at that price. In June the deliveries amounted to some 60,000,000 pounds, and based upon the past six months it would seem that 1909 would show a domestic consumption in the neighborhood of 530,000,000 to 540,000,000 pounds. It is believed that, eventually, the price will increase though any active demonstration is unlooked for at present.

LEAD ORE ADVANCING IN PRICE.

Chicago, Ill.—The reports from Joplin, Mo., indicate that the ore market for lead had increased a dollar per ton, bringing the highest price to $55.

NEW YORK METAL MARKET, JULY 20.

Copper, Prime, Lake	$13.37½
Copper, Electrolytic	$12.80 to 12.90
Antimony, Cookson's	8.37½
Lead	4.35
Straits Tin	29.12½
Spelter	5.42½

CHICAGO IRON MARKET, JULY 22.

Southern, No. 2 Foundry	$16.85-17.35
Northern, No. 2 Foundry	16.50-17.00
Lake Superior Charcoal	19.50-20.00

July 22, 1909:

Foundry iron was same as week previous
50c less per ton than the year previous
Copper was ¼c less than the month previous
½c more than the year previous

CHICAGO OLD METAL MARKET.

Chicago, Ill.—Dealers' buying prices are as follows:

Clean heavy copper and wire	$12.00
Light copper	10.75
Heavy composition	11.00
Heavy yellow brass	8.50
Light brass	5.25
Heavy lead	4.00
Tea lead	3.50
Scrap zinc	4.00
Block tin pipe	24.00

NEW YORK OLD METAL MARKET.

New York.—Dealers' buying prices are as follows:

Heavy Crucibled copper	$11.50 to	11.75
Heavy copper wire	11.25	11.50
Light copper	10.00	10.50
Uncrucibled hy. copper	11.25	11.50
No. 1 mach. composition	10.75	11.00
Plumbers cocks and faucets	9.00	9.50
Heavy brass	8.00	8.25
Light brass	6.00	6.50
New brass scrap	8.50	8.75
No. 1 brass turnings	7.25	7.50
No. 1 comp. turnings	8.25	8.75
Block tin pipe	26.00	27.00
Solder joints	6.25	6.50
Heavy lead	4.00	4.10
Tea lead	3.75	3.85

PLUMBING INSPECTION

MASSACHUSETTS STATE BOARD OF EXAMINERS OF PLUMBERS APPOINTED.

Boston, Mass., July 22.—[Special.]—The new State Board of Examiners of Plumbers in Massachusetts was appointed today as follows: **Edward C. Kelley**, of Boston; **James C. Coffey**, of Worcester, and **Charles R. Fenton**, of Brockton. It will be the duty of this board to examine all persons desiring to engage in the business of plumbing as master plumbers and all who wish to work at the plumbing trade as journeymen plumbers. Mr. Kelley is a prominent Boston master plumber and member of the local association, and he will act both as a member and clerk of the board and will receive a salary of $2,000 a year. He lives at 195 Centre street, West Roxbury, Mass.

PLUMBER PACKS UP AND GETS OUT.

Trenton, N. J.—A plumber in this city violated the plumbing code in several ways, with the result that a fine of $50 was recently imposed upon him. When a constable tried to locate him this week he found that the plumber had packed up and left town.

THE RE-ELECTION OF R. S. BEMIS AS PLUMBING INSPECTOR COMMENDED.

Providence, R. I.—The action of the city government in re-electing Reuben S. Bemis as inspector of plumbing is being widely commended. Mr. Bemis has held the office for many years to the entire satisfaction of the city.

Uncle Ezra Says.

"Fellers who do all their travelin' in airships won't hev much uv an opportunerty fur leavin' footprints on the sands uv time."—Boston Herald.

ASSOCIATION NEWS

MASTER PLUMBERS OF ST. LOUIS PREPARE FOR ANNUAL PICNIC.

St. Louis, Mo.—The Master Plumbers' Association of this city has announced an excursion to take place August 7, 1909. The festive occasion will take place at Belle Isle park, transportation being afforded upon the steamer "City of Providence," which will leave from the foot of Olive street at 9 a. m. sharp.

HARRISBURG PLUMBERS' ANNUAL OUTING.

Harrisburg, Pa.—The annual outing of the Harrisburg Master Plumbers' Association was held on July 11 and 12 at Englenook, one of the most beautiful picnic sites of Central Pennsylvania. The outing was a great success in every respect and two days are reported to have passed very rapidly. Boating, bathing, ball playing and some little fishing was indulged in. Mr. C. K. Nill, from Lancaster, Pa., attended the outing on the second day and really felt that he had lost out by not making the trip a day sooner.

BOSTON MASTER PLUMBERS FIX DATE FOR ANNUAL OUTING.

Boston, Mass.—The annual outing and shore dinner of the Boston Master Plumbers' Association will be held at the Bass Point Hotel, Bass Point, Mass., on Wednesday, August 11. The party will go down to Bass Point in the morning by way of the Nahant line of steamers, and dinner will be served at 2 p. m. The leading features of the day beside the dinner will be a ball game and a bowling match between master plumbers and supply men. Arrangements have also been made for races for the ladies and members, with suitable prizes for the winners. John Vogel is chairman of the committee on arrangements, and he reports matters in such a shape that a most enjoyable event may be expected.

CONVENTION DATES.

August 9, 10 and 11, 1909.—Annual convention of the **International Acetylene Association** in New York City. Headquarters at the Hotel Knickerbocker.

August 24 and 25, 1909.—Regular quarterly meeting of the **National Association of Brass Manufacturers** in Detroit, Mich.

September 15 and 16, 1909.—Annual convention of the **National Association of Master Plumbers of the Dominion of Canada,** at Montreal.

East Orange, N. J.—F. Lang Company has been awarded the plumbing contract for a building on Shepherd avenue. The consideration is $1,001.

Brooklyn, N. Y.—U. C. Seaman, of Troy avenue, was awarded the contract for the installation of plumbing and heating systems in twenty houses on Sterling street.

New York, N. Y.—Philip Leavitt, of 1541 Madison avenue, will install the plumbing system in the new Lexington Hotel in course of construction at 135 East Twenty-fourth street.

NEWS FROM DETROIT

Detroit, Mich.—Robert Addy, 1900 W. Fort street, was the lucky bidder in the recent letting for government work at Fort Wayne. His contract calls for the plumbing and heating of new barracks now under construction.

Detroit, Mich.—The new addition to Newcomb-Endicott's department store will be equipped with modern toilet conveniences for the comfort of shoppers. Ernst Bros., of 414 Woodward avenue, have the contract for the installation.

Detroit, Mich.—Moeb's Hotel on Monroe street, near the Campus, is being renovated throughout and the plumbing will be overhauled by John H. Kennedy, who will install considerable high-grade new equipment in addition to bringing the old equipment up-to-date.

Detroit, Mich.—Much interest centers in the new department store being built for Elliott-Taylor-Wolfenden Company under the direction of John Scott & Co., architects. The plumbing work will, it is understood, be first-class in every particular, and the lucky plumber who gets the contract will have an opportunity to do himself proud.

Detroit, Mich.—The reconstruction work on the old Whitney opera house has been begun with a rush, and to S. H. Morgan has been entrusted the work of bringing the plumbing up to the standard required in a first-class play house. The job calls for about twelve hundred dollars' worth of new plumbing in addition to alterations. The letting of the heating contract has not as yet been announced. Ventilation will be provided for by the installation of powerful exhaust fans.

Detroit, Mich.—Kerr & Robertson, 237 Griswold street, who recently took over the business of their former employer, F. W. Ryder, have been making the most of their opportunity and are said to have added many good customers to the clientele enjoyed for so long by Mr. Ryder. Their training for the work was eminently practical, Kerr having had many years of experience in the contracting and jobbing end of the business, while Robertson is thoroughly familiar with the office end.

OBITUARY

Martin Kane, senior member of the plumbing firm of Martin Kane & Brother, of 311 Fifth avenue, Nashville, Tenn., passed on suddenly from heart trouble at French Lick Springs, Ind., on Wednesday, July 14. Mr. Kane was one of the leading plumbers in his city and an active member of the local master plumbers' association, which called a special meeting the day following his death and passed suitable resolutions on his demise.

Washington, D. C.—Sealed proposals will be received at the office of the Supervising Architect, James Knox Taylor, until 3 o'clock P. M. on the 9th day of August, 1909, for the construction (including plumbing, gas-piping, heating apparatus, electric conduits and wiring) of the U. S. Post Office at Belvidere, Illinois, in accordance with drawings and specification.

PENNSYLVANIA

York, Pa.—Edward A. Smith has started work on his factory building contract at Wrightsville, Pa., and reports several other contracts under way.

Lancaster, Pa.—Wm. Stumph is just nicely started on the roughing-in of the plumbing in the new Wisenberger furniture store on East King street.

Bridgeport, Pa.—The Bridgeport Wire and Iron Works have sixteen different plumbing and heating contracts in course of construction at present.

York, Pa.—H. E. Weigle, of 644 N. Philadelphia street, is starting the rough work on his plumbing contract in the three new houses on W. Market street.

Steelton, Pa.—H. G. Neuscheriski has the plumbing in nine new houses under course of construction, and reports the general outlook for plumbing rather good.

Middletown, Pa.—J. C. Thomas, of 23 Catherin street, has secured the contract for the heating and plumbing work in the new Krider Shoe Company building.

York, Pa.—Chas. Litchenberger, of 751 E. Market street, has a three-thousand dollar operation under way in the form of the plumbing and gas work in nine new residences.

York, Pa.—Blum & Eyster have a number of worthy contracts under way this season among which are the Hartman five-story block, also the C. F. Welsh business block.

Lancaster, Pa.—Carl G. Long, of 402 East Orange street, has secured the contract for the plumbing work in the new residence being built by N. B. Parrish at Mount Villa, Pa.

Lancaster, Pa.—Walter A. Humphreyville, of 442 W. James street, is doing the plumbing in the new 8,000-dollar residence being built by O. H. Shank on Columbia avenue.

Harrisburg, Pa.—M. F. Saul, of 1517 North Fourth street, has contracted for the laying of 3,000 feet of 6-inch water main for the city. The work will be started about August 1.

York, Pa.—Peeling & Simon, of 231 South George street, are installing the pneumatic water supply system and a complete plumbing outfit in the Burnham residence on York Road.

York, Pa.—Shire & Enig, of West King and N. C. Railway, are nearing the completion of their contract in the new $40,000 residence erected by the Burnham sisters, south of York.

York, Pa.—Smith & Brown, of 441 Salem avenue, have seventeen new houses in which to install plumbing in the next few weeks. This firm reports an excellent outlook in the plumbing line.

Pottstown, Pa.—R. B. Ritz has secured the contract for plumbing work in two residences being erected by H. Henesee on Beech street. The buildings are to be ready for plumbing about August 1st.

Harrisburg, Pa.—J. W. Davies, of North 13th street, has secured the contract for plumbing and gas work in 16 new houses at Rudy and Center streets. The cost of the plumbing work will reach $3,200.

Lancaster, Pa.—J. G. Coulter, who has been conducting a plumbing and heating business at Christian and Vine streets, is now erecting new office, shop and store house at Plumb and Green streets.

Harrisburg, Pa.—H. S. Lutz, of 211 Verbeck street, is doing the plumbing in the new apartment house at the corner of Front and Foster streets. There are to be seven complete bathrooms in the building.

Steelton, Pa.—U. K. Dunn, of 22 Adams street, is doing plumbing for Dr. D. B. Dickinson and also has the contract for the plumbing in the new residence being erected for Jno. W. Conrad at Highspire, Pa.

Pottstown, Pa.—E. E. Davis is about ready to start work on the plumbing for the three new residences he has recently secured, and is just finishing his $5,000 plumbing and heating contract in the Pottstown Hospital.

Wilkinsburg, Pa.—The contracts for the hot water heating systems that are specified for the two new residences now being built here for R. W. DeNoon have been awarded to the Modern Heating Company of this city.

Lancaster, Pa.—E. P. Hummel has opened a plumbing and heating establishment at 254 E. New street. Mr. Hummel is a practical plumbing and heating expert, having followed these lines for a number of years in Philadelphia.

Middletown, Pa.—Wm. F. Keeser can be found at his cozy little office on the main street during the cooler hours of the day, but when the sun is high he is usually found somewhere in the neighborhood of his summer home on the farm.

BLANK FOR

Report of an Award of Heating or Plumbing Contract

(Cut out, fill in and mail promptly)

DOMESTIC ENGINEERING
Chicago

We have been awarded the contract for

_____
plumbing or heating

the _____, the
kind of building

amount of the contract being $_____

Owner's name _____

Address _____

Architect's name _____

Address _____

General Contractor's name _____

Address _____

Our own name _____

Address _____

Harrisburg, Pa.—Wm. C. Wykoff, of 1310 Wyeth avenue, has secured the contract for plumbing work in ten new houses being built at Thirteenth and Berryhill streets for M. A. Shudder. His operations along the plumbing line amount to $3,000.

New Cumberland, Pa.—G. Bayley Osler is installing a steam heating system in the residence of Mrs. E. Ernes, at Elkwood, Pa. He is also busy with the plumbing and gas work in two new houses being erected by S. F. Prowel at New Cumberland.

Lancaster, Pa.—C. M. Buckwalter, who recently started in the plumbing business at 545 Spruce street, has a number of new residence plumbing jobs on the go at present. He would appreciate receiving price lists and catalogues from dealers in his line.

East Downington, Pa.—J. R. Gordon, who has conducted a plumbing and heating business here for the past 35 years has recently disposed of his business with the intention of retiring. The business will be carried on by J. W. Maxwell, formerly of Williamsport, Pa.

Harrisburg, Pa.—H. T. Holihan, of 541 Woodbine street, has his plumbing contract in the Kramer block nicely under way. He also has recently secured a contract for plumbing work in four new houses on Jefferson street for Shoe & Landis, to be started about August 1.

Reading, Pa.—Frank L. Kreps, of 40 N. 6th street, is being kept rather busy with hot water heating work this season. He has a number of new residence jobs under way in this city and vicinity and is just putting the finishing touches to the St. Clair Hotel job at Atlantic City.

Harrisburg, Pa.—J. Wm. Bayles, of 1611 North Sixth street, one of the best known plumbers in this section, has disposed of his business to Chas. W. Hockley, who has been employed at the Harrisburg Foundry and Machine Works until recently, has decided to join the rank of master plumbers.

Lancaster, Pa.—Simpson Brothers, of 418 W. King street, have a number of nice contracts under way at present, among which are three school buildings, known as Pearl Street, South Strawberry Street and Seventh Ward Schools. The contract for the plumbing amounts to $760, $708 and $3,000, respectively.

Coatsville, Pa.—J. D. Scott is on the job with both feet these warm days, which his run of work readily shows. He has recently landed the plumbing and heating contract for the German Lutheran Church, which amounts to $1,100, also the work in W. H. Hamilton's business block, which amounts to $1,300.

Harrisburg, Pa.—J. R. Lynne, of 1010 Market street, has a number of good plumbing and heating contracts under way this season. He has a $3,740 contract for plumbing tor H. H. Sherk, a $1,200 plumbing and heating contract for Chas. Buxon on Walnut street, and numerous residence plumbing jobs, but through it all he finds time to give plenty of attention to the construction work of his own new residence being erected at Paxtang, a suburb of Harrisburg.

O. T. Carson.

BOSTON AND NEW ENGLAND

Norway, Maine.—L. M. Longley has the contract for plumbing the new Gould Academy dormitory at Bethel.

Somerville, Mass.—Frank P. Johnson is having an electric lighting system installed in his plumbing shop at 368 Medford street.

West Springfield, Mass.—The town is to install a system of shower baths and new sanitaries in the basement of the town hall.

Skowhegan, Me.—Nash & Viles have the contract for plumbing two cottages which are being erected for John Holden & Co., at Rockwood.

New Haven, Conn.—E. A. Lettney has the contract for plumbing and heating the new house which C. O. Blake is building on Center street, West Haven.

East Norwalk, Conn.—John F. Griffin, the local master plumber, who has been laid up for some time past, is able to be about and tend to his business again.

Bristol, Conn.—A petition has been filed with the board of wardens asking the appointment of a plumbing inspector. It is signed by all the plumbers of the town.

Berlin, N. H.—The new plumbing and tinsmith shop of the Berlin Mills Co., is fast nearing completion and will afford these two departments very commodious quarters.

Amherst, Mass.—The trustees of the State Agricultural College have asked bids for the erection of a new entomological building and for separate bids for heating and ventilating.

Rutland, Vt.—Carl B. Dinsmoor, formerly connected with G. W. Pratt in the plumbing business, has gone to Glen's Falls, N. Y., where he is associated with the Union Plumbing Co.

Greenfield, Mass.—The contract for plumbing the new Armory building has been given to Pierce & Cox of Boston for $2,232. George V. Corsiglia of Greenfield has the heating contract at $2,250.

Meriden, Conn.—The school board has awarded the contract for sanitaries at the Columbia school to Taylor & Taylor, a local plumbing firm. There were six other bidders ranging from $1,073 to $2,200.

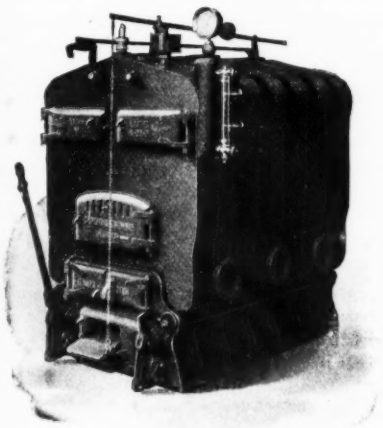
Meriden, Conn.—Mrs. Jessie Hall of Orange street has given the contract for plumbing her house to Broden & Lynch. The same concern is to do the plumbing in connection with the addition to the Capon building on Pratt street.

Lawrence, Mass.—Plumbing Inspector J. Oswald Cullington figured in a runaway accident a few days ago and had a narrow escape from serious injury. As it was he was thrown out and received injuries to his ankles and several cuts and bruises.

Brocton, Mass.—The Fuller-Warren Co., of Boston has been awarded the contract for new furnaces in the Keith and Union schools for $940. The only other bidder was the Alden Sheet Metal & Plumbing Co., whose bid for the two jobs was $1 higher.

Labor-Saving Helps.

It's the little labor-saving devices on a first-class Boiler having large heat-making capacity, which help to make that capacity most elastic, most controllable and of highest value to the house-owner. A strong chain of good heating results is the product because there are no weak links due to difficult regulation.



IDEAL STEAM BOILER

On left hand is an easy shaker. The left rod on top regulates smoke damper from front. The Sylphon Regulator keeps the dampers just right. The gauge tells the pressure, and the column under it has a siphon trap and best of try-cocks to test water heights. All simple and "easy to run".

This fact sums up one of the strongest points in IDEAL Steam and Water Boilers. The accompanying picture tells a story of many modern improvements which make it easy to run and regulate the Boiler. Each fitting shown is made and selected with reference to better heating results, better control, easier care-taking; and all this produces the largest degree of satisfaction with the least amount of coal. These small features (not equaled and often not found at all in other Boilers,) help to make the IDEAL the easiest Boiler to sell.

AMERICAN & IDEAL
RADIATORS BOILERS

AMERICAN RADIATOR COMPANY

General Offices, 282-286 Michigan Ave., Chicago.

New York	Cincinnati	Cleveland	Atlanta	Brantford, Ont.	Denver
Philadelphia	Boston	Milwaukee	Minneapolis	Seattle	St. Louis
Pittsburg	Buffalo	Indianapolis	Kansas City	Omaha	San Francisco

Boston, Mass.—Huey Brothers' Company, of 35 Hartford street, has been awarded the contracts for the steam heating and ventilating in the new Elk's temple on Somerset street; the new officers' quarters and guard house at Fort Andrews; the new officers' quarters at Fort Strong on Boston harbor, and the new Universalist church in Chelsea.

West Somerville, Mass.—The firm of Milliken & Robie, which has conducted a general plumbing, lighting and heating business at 261 Elm street, has been dissolved. J. F. Robie has retired and the entire business has been taken over by R. W. E. Milliken. Mr. Milliken, however, will continue under the old firm name of Milliken & Robie, Inc.

Montpelier, Vt.—Eleven bids were received by the city for heating, plumbing and ventilating the new city hall. Two of the bidders were Montpelier concerns, one was from Waterbury, and the remainder from Boston. No contract has yet been let and for this reason the amount of the bids are not made public. The average, however, was $9,335. The bidders were: C. H. Sanborn, Huey Brothers Co., James B. Dwyer, Walworth Construction and Supply Co., McLean & Cousens, Lackey & McMuner, W. W. Campbell & Sons, and Alex Duncan & Co., of Boston; D. J. Cooley, of Waterbury; and Peck Brothers and the Montpelier Heating & Plumbing Co., of this city.

Somerville, Mass.—The contract for installing new sanitaries in the Cummings' school has been given to J. H. Adcock, whose bid was $667, and the contract for similar work at the Davis school to E. S. Stack for $680. The bidders for the Davis school job and their figures were as follows: H. E. Campbell $830; J. J. Fisher, $694; F. O. Johnson, $730; E. S. Stack, $680; Armstrong Bros., $734; C. A. Cahalan, $750; W. J. Hanson, $810; J. H. Adcock, $717. The bidders for the Cummings school job and their prices were as follows: H. E. Campbell, $835; J. J. Fisher, $697; F. O. Johnson, $735; E. S. Stack, $680; Armstrong Bros., $723; C. A. Cahalan, $740; W. J. Hanson, $804; J. H. Adcock, $667.

CAUGHT DEER IN BATH-TUB.

Providence, R. I.—Trapping a deer in a bath-tub is altogether a novelty in the hunting line, as well as a novel use for a bath-tub, yet such was the termination of a deer chase in this city one day last week. Shortly after 6 o'clock in the morning Patrolman Frank Schiller of the Fourth station saw a deer on Fountain street and tried to lasso it with a piece of electric light wire. The deer dodged him and ran through Washington to Dean street, where it vaulted a fence back of Michael J. Kilroy's house at 256 Dean street. One of the rear windows was open, and through this the deer made a dive. Mr. Kilroy was in his kitchen, and, hearing a hubbub in his bathroom, hastened to ascertain the cause. To his amazement he found a deer lying at full length on its back in the bath-tub. Just then the police officer arrived, and after considerable maneuvering they got the deer on its feet. A rope was used to lower it to the yard and it was led captive to the police station, from where it was transferred to Roger Williams Park.

BOOK REVIEWS

The Sanitary Sewerage of Buildings.—By Thomas S. Ainge, Sanitary Engineer, Michigan State Department of Health; **Mem.** Am. Soc. of Inspectors of Plumbing and Sanitary Engineers. One octavo cloth bound volume, 8"x5", 209 pages, illustrated. Domestic Engineering, Publishers, Chicago, 1908. Price $1.50.

In recent years a perfect flood of small handbooks on plumbing and house sewerage has seen the light of day, and after having with difficulty prodded our way through much of what is bad, mediocre, or indifferent, it is refreshing to come across a book by an engineer, which is both sound and practical, and which deserves to be better known than it seems at present to be. Such is the verdict which we have reached after a careful reading of the ten chapters of this work. Perhaps one or the other chapter shows evidence that the author has had but a limited experience in the particular subject to which the chapter is devoted, but taken as a whole, the book is thoroughly sound and the technical advice which it contains is a summary of the best principles which at the present time govern this branch of house sanitation.

There is first a brief, but excellent introduction, serving to break faith in the old popular belief that disease is a "visitation of Divine Providence." The former so-called "filth theory of disease" likewise receives a set-back, the author explaining that filth merely predisposes man to disease, by a gradual but constant lowering of vitality, and because it tends to promote the development of deleterious micro-organisms, which are now recognized as the true cause of many of the preventable diseases. One of the potent factors in preventing filth-disease is the sanitary removal of waste matter from habitations, and having reached this conclusion, the author goes on to consider his special subject.

In Chap. I he gives us some of the main general principles of sewerage, comprising rapid and complete removal, oxidation of organic matter by efficient ventilation, exclusion of sewer air from living apartments, tightness of sewer conduits, simplicity of arrangement, and durability of the work. The author does not attempt to discuss the question, which at one time interested the general public so much: Can sewer air be looked upon as the cause of diseases, like diphtheria or typhoid fever? He very wisely confines himself to the brief, but eminently correct statement that the habitual breathing of sewer air gradually undermines general health and that for this reason alone, if for no other, entrance of sewer air into habitation must be prevented.

Chap. II takes up the construction of the sewer outside of the house, and points out that before construction is begun it is advisable to prepare a plan of the proposed work, showing the locations, sizes and grades of the house sewers. Such a plan is in some cities required by the plumbing code, but the author recommends that it be made in all cases, first to ensure proper construction and second, as a reference guide

in case of future alterations or repairs. The paragraphs on sewer alignment, on the grading of sewer trenches, on providing good foundations, on the materials, sizes and grades of the sewer are very good indeed, but we are not in accord with the author's endorsement of the paragraph in the Cleveland code which suggests "counting 20 square feet of roof or yard area as equivalent to one fixture," when the size or diameter of a sewer is to be determined by calculations. This chapter brings also a discussion of the main house trap question, in which the author concluded that the house trap is in most cases a necessary evil. A curious error on page 46, where the author speaks of the "trapping of the public sewer at grade," when he obviously meant to speak of ventilation.

The next chapter, III, is devoted to the inside house sewer, and we are glad to note the author's decided stand against earthenware pipe house drains. He also shows why house sewers under the cellar floor are not so good as pipes hung from the ceiling beams, or carried in sight along a cellar wall. He advises that where it can be helped, no part of the house sewer should run under the coal bin, or through the fresh air chamber of the heating apparatus and this for reasons which are obvious. Access holes and flushing appliances for sewers on flat grades are advised.

Chapter IV discusses soil, waste and vent pipes, and the excellent advice, so often disregarded by inexperienced architects is mentioned to avoid an undue multiplication of soil or waste pipe stacks. The entire chapter shows evidence of an intelligent treatment of the subject.

Chapter V on the roughing-tests is full of good hints and we gladly endorse the author's statement that "tests are a powerful incentive to good work."

A good, but rather too brief, summary of plumbing fixtures and their accessories is given in Chap. VI, including hints on the lighting and ventilation of public toilet rooms.

The important subject of trapping occupies the entire Chapter VII. In it the author reviews in length both sides of the question of reventing traps by special lines of back air pipes. He evidently tries to be impartial, and while in one part he appears to favor the S-trap with vent, in reading further on he seems to be rather non-committal on the subject. In doing so we think, he forgot one of his own requirements of good plumbing, viz.: simplicity of arrangement. He, however, suggests that all traps be tested before approval in a manner similar to the one required by the Cleveland Code.

We heartily approve of the recommendations in Chapter VIII that the plumbing in important public buildings be inspected and tested periodically, at least once a year, and that tenants demand from the landlord or his agent a certificate of the sanitary condition of a residence at the time of letting it.

Chapter IX, on the disposal of sewage in unsewered localities, is perhaps too superficial, and lacks authoritative statements, which may be due to the fact

CAPITOL BOILERS AND RADIATORS

Capitol Foot Rests

The most practical and convenient foot rest yet designed. Simple construction, and easily attached to any make, width or height radiator. Can also be set in horizontal position, making it adapted for foot warmer or plate warmer as desired. When not in use can be closed flush with the side of radiator.

Furnished either in plain iron or nickel-plated.

This is a fine specialty for the up-to-date heating contractor to have in stock at all times, a strong seller, as everybody who sees them wants one or more.

Attach one to a radiator in your show window and note results. You'll be surprised what an easy seller it is and how popular it will make your heating installations,

Complete Catalog on Request

United States Heater Company.

General Offices and Works: Fort St. and Campbell Ave., DETROIT, MICH.

Branches:		Sales Agencies:
NEW YORK	129 Worth St.	NORFOLK & RICHMOND, VA., Virginia-Carolina Supply Co
CHICAGO	34 Dearborn St.	MINNEAPOLIS, MINN., Plumbing & S. F. Supplies Co.
OMAHA	916 Farnam St.	ST. LOUIS, MO., L. M. Rumsey Manufacturing Co.
DETROIT	139 Jefferson Ave.	DENVER, COLO., Kellogg & Stokes Stove Co.

that the author has had no personal experience in works of sewage disposal.

The last chapter speaks of the care of private sewers, and contains some very useful suggestions. The book does not go at all into the matter of water supply to plumbing fixtures, but the subject of the title of the book is well covered, and the author's attempt to give us an up-to-date handbook certainly deserves approval.—**W. P. G.**

TRADE LITERATURE

From the Jewell Manufacturing Co., Auburn, N. Y.—A strikingly handsome three-color lithograph, 13½x27 inches, representing a most artistically dressed lady supposedly telephoning for the booklet "The House Comfortable," issued by the Jewell Manufacturing Co. The booklet and lithograph will be sent promptly to interested parties upon request mentioning "Domestic Engineering."

From the McCrum-Howell Company, Park avenue and 41st street, New York, N. Y.: "Catalogue F," 70 pages, 4½x7¼ inches. This catalogue gives valuable information concerning the Richmond boilers and the Richmond radiators relative to their construction, sizes, list prices and many tips as to the best method of installation. The catalogue is illustrated by numerous half-tone engravings.

From the Frost Manufacturing Company, Kenosha, Wis.: "Plumbers' Brass Goods," 138 pages, 4x6 inches, an illustrated catalogue printed on highly glazed paper and containing information relative to nickeled supply pipes, traps, flanges, wastes, floats and many other specialties produced by this firm. A copy of this catalogue can be obtained upon application mentioning "Domestic Engineering."

From American Steam Gauge and Valve Mfg. Company, of 208-220 Camden street, Boston, Mass.: "The Positive Water Glass Guard," two handsomely illustrated and well written folders explaining how accidents and law suits caused by bursting water glasses can be avoided. The Positive Water Glass Guard can be applied to any boilerhead at an infinitely small cost, as it requires no change in water glass fixtures.

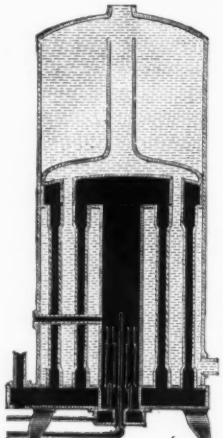
From John T. Young Boiler Company, of Norwich, Conn.: "Norwich Radiators," a 12-page pamphlet illustrating and describing the Norwich steam and hot water radiators, which this company has placed on the market this summer. These radiators are, the makers state, made of the very best soft grey iron, with slip nipple connections in either plain or ornamental pattern, and they are finished in a smooth and perfect manner.

From the James Robertson Manufacturing Company, Baltimore, Md.: "Catalogue 'F' of Sanitary Specialties and General Plumbing Goods," cloth, 428 pages, 9x12 inches, containing revised lists conveniently arranged and a complete index. The catalogue contains many beautiful half-tones of modern bath rooms and fixtures with information as to sizes and list prices, and also describes and illustrates the arrangement of various closets manufactured by this concern, together with numerous other specialties which are the product of this company.

From The Leader Iron Works, Decatur, Ill., and 15 William St., New York City: "Handbook of Hydro-pneumatics as Applied to Water Supply Systems," 52 pages, 3¾x9 inches. This book is intended to cover the question of pneumatic water supply from the dealer's or salesman's standpoint and is of technical interest to everyone connected with the selling or installing of pneumatic water supply systems. Its size makes it convenient for the pocket or for the pigeon hole in the desk. It is written by a practical man, intended for practical men, and gotten up in a practical manner. Illustrations of a large number of outfits and machinery for such use are shown and some of these illustrations are made from lettered drawings, which give the exact method of installing, giving pipe sizes and details necessary for the proper installation of the plant. Among the different chapters of special interest are the following: Importance of a Proper Supply of Air, Leader Hydro-pneumatic Tanks, Galvanized Tanks, Other Equipment, Designing the Plant, The Question of Power, For City Use, and Installing the Plant. To those who are already interested in this line of work, this book will be of great value, and to those who are not already interested it will give a number of pointers and should assist them to do a lot of business along this line. The Leader Iron Works do not consider this book a strictly advertising proposition, they are willing to send it to the trade upon receipt of only 6 cents in stamps to cover the cost of mailing.

WITH THE MAKERS

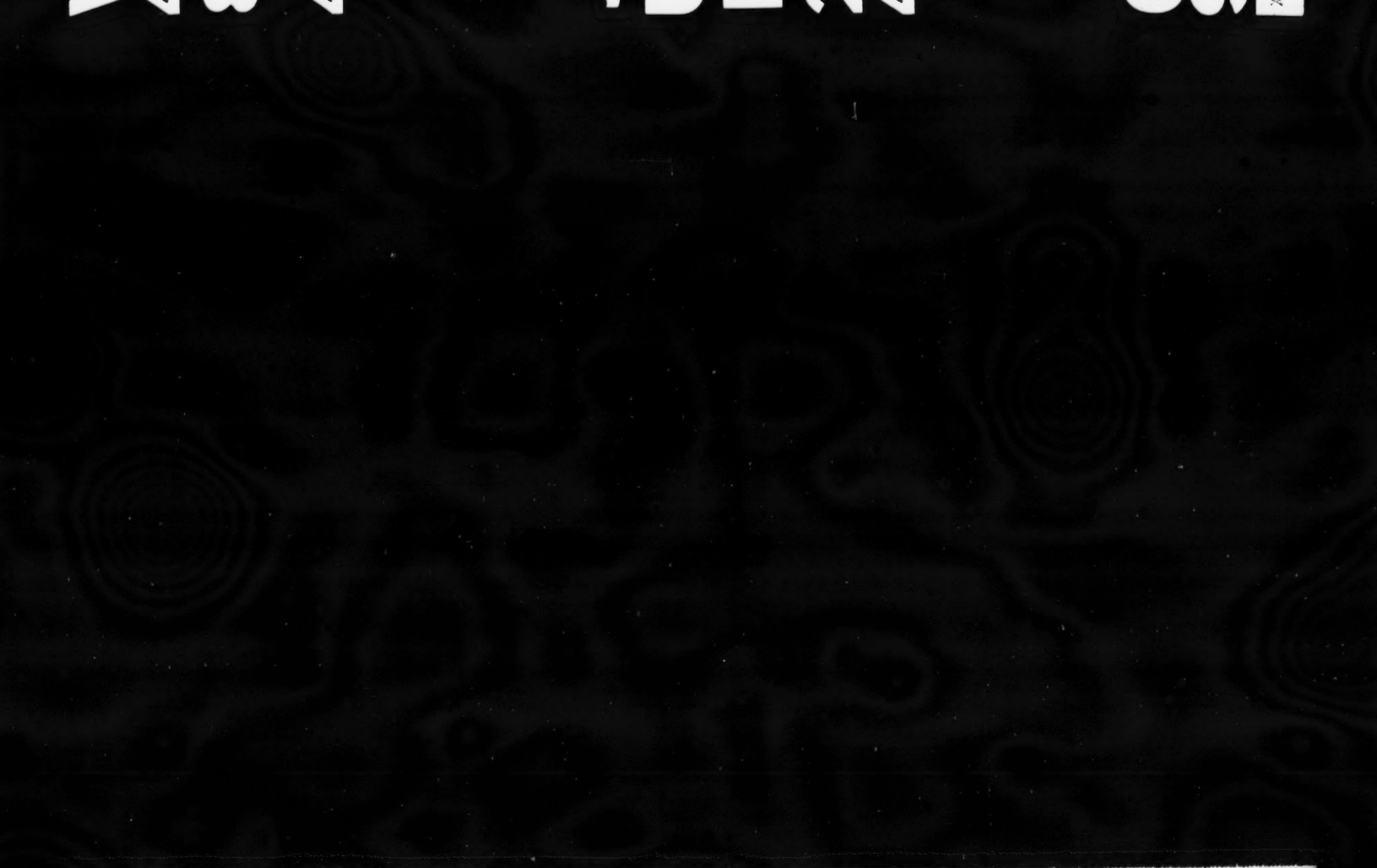
The Economy Gas Water Heater.



The Economy gas water heater.

The Gas Appliance Manufacturing Company, of 1050 Hulbert avenue, Cincinnati, O., has recently placed on the market a gas water heater, under the name of the Economy, a sectional view of which is shown in the accompanying illustration. This heater can be used with either natural or artificial gas and is made in sizes to meet all requirements. This company also makes a steam heater which will raise steam to a pressure of 75 lbs., and which is said to be particularly well adapted for Turkish bath rooms and other places where steam is used in small quantities. Full particulars about these two new heaters will be sent promptly to interested parties upon application mentioning "Domestic Engineering."

Wise One.

"Why don't you take a vacation, Bilkins? The boss can get along all right without you."

"I know it; but I don't want him to get wise to it."—Judge.